SAKET SHARMA

# EMRS TGT LIBRARIAN TIER-2 PART 5

## INFORMATION SOURCES AND SERVICES

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# Syllabus Part V: Information Sources and Services

**Unit 1: Reference and Information Sources**

- Documentary Sources of Information:
  Print and Non-Print Sources, including Electronic Sources – their special features, scope, and types.
- Nature, Characteristics, Utility, and Evaluation of Different Types of Information Sources with reference to:
  Physical formats, authority, content, and utility.
- Non-Documentary Information Sources.
- Categories of Reference Sources:
  Primary, Secondary, and Tertiary Information Sources, including:
  Encyclopedias, Dictionaries, Periodicals, Theses, Books, Yearbooks, Patents, Trade Literature, Standards, Monographs, Reference Books, Almanacs, Atlases, Abstracting and Indexing Periodicals, Bibliographies, Handbooks, etc.
- Internet as a Source of Information.

**Unit 2: Reference Service**

- Concept, Definition, Need, Scope, and Trends of Reference Service.
- Reference Interview and Search Techniques.

**Unit 3: Information Services and Products**

- Information Services and Products.
- Concept, Definition, Need, and Trends of Information Services.
- Need, Techniques, and Evaluation of Alerting Services (CAS and SDI).
- Bibliographic Services, Referral Services, Document Delivery Services, and Translation Services.

**Unit 4: Information Systems and Their Services**

- Study of National, International, and Commercial Information Systems and their Services.

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# Unit 1: Reference and Information Sources

## 1. Introduction

- Information is generated through **education, research, observation, experience, and communication**.
- It is recorded in multiple formats such as **books, journals, reports, databases, audio-visual media, and digital platforms**.
- Users require information for purposes like:
    - Study (students preparing for LIS exams)
    - Research (writing dissertations, research papers)
    - Problem solving (library administration, policy decisions)
    - Entertainment and general awareness
- Kinds of information required by users:
    - **Current information** – latest LIS journals, newspapers, library portals
    - **Background information** – textbooks on Library Science
    - **Statistical information** – library annual statistics, user data
    - **Research information** – theses, dissertations, scholarly articles
- Useful information is that which:
    - Is actually used
    - Creates value in learning, research, or decision-making
- Qualities of good information:
    - Relevant to the purpose
    - Accurate and reliable
    - Complete and up to date
    - Communicated at the right time
    - Provided at the appropriate level of detail
    - Delivered through a channel understandable to the user
- For communicating such information, **information sources are essential**.

## 2. Scope of the Unit

- This module deals with **documentary sources of information**.
- It explains there:
    - Characteristics

    - Categorization
    - Use in different contexts
- Documentary sources are categorized into:
    - Primary sources
    - Secondary sources
    - Tertiary sources
- Their importance is discussed with respect to:
    - Study
    - Research
    - Recreation
    - Personal development
- **Non-documentary sources** are discussed separately in the next module.

**3. Information Sources**

- A **source** is a place or person from which something useful or valuable is obtained.
- A **resource** is something that can be used to perform a function.
- Information sources include:
    - Documents (books, journals, reports)
    - Human sources (teachers, librarians, subject experts)
    - Institutions (libraries, archives, research centers)
    - Mass media (radio, television, internet)
- Importance of information sources for LIS students:
    - Indicate current developments in librarianship
    - Help avoid duplication of research topics
    - Provide answers to reference and research queries
    - Clarify unfamiliar LIS terms (e.g., classification schemes)
    - Offer historical and conceptual understanding of LIS subjects

**4. Information Sources vs Reference Sources**

| Aspect | Information Sources | Reference Sources |
|---|---|---|
| Nature | General or detailed information | Specific and ready-reference information |
| Coverage | May be exhaustive | Concise and factual |
| LIS Examples | Books on Library Science, research journals | Dictionaries, encyclopedias, directories |
| Purpose | Study and research | Quick consultation |

**5. Information Sources vs Information Resources**

- Information sources:
    - Provide information directly
    - Include both documents and non-documents
- Information resources:
    - Describe or represent other resources
    - LIS examples:
        - OPAC records describing books
        - Bibliographic databases describing journal articles

**6. Types of Information Sources**

- Identification of information sources is essential during **user requirement analysis**.
- Proper selection ensures:
    - Completeness
    - Accuracy
    - Relevance
- Information sources are organized based on:
    - Content
    - Form
    - Medium
- Broad classification:
    - Documentary sources
    - Non-documentary sources

**7. Documentary Sources**

- Documentary sources include **all recorded sources of information**, irrespective of format.
- These may be:
    - Published or unpublished
    - Print or electronic
- LIS-relevant examples:
    - Books on cataloguing and classification
    - LIS journals and periodicals
    - Conference proceedings
    - Theses and dissertations
    - Institutional repositories

**8. Classification of Documentary Sources**

- Based on **appearance of information**, documentary sources are categorized as:

| Category | Meaning | LIS Examples |
|---|---|---|
| Primary Sources | Original information appearing for the first time | Research articles, PhD theses, conference papers |
| Secondary Sources | Analysis or organization of primary sources | Indexing journals, abstracting services, textbooks |
| Tertiary Sources | Compilation of secondary sources | Handbooks, directories, bibliographies of bibliographies |

**9. Non-Documentary Sources**

- Non-documentary sources are those **not contained in written or recorded documents**.
- These include both formal and informal sources.
- LIS examples of non-documentary sources:
    - Interaction with senior librarians
    - Expert advice from cataloguing or classification specialists
    - Conferences, seminars, and workshops
    - Informal discussions among library professionals

**10. Documentary Sources**

- Documentary sources include **all recorded sources of information**, irrespective of:
    - Content
    - Physical form
    - Medium
- These sources may be:
    - Published or unpublished
    - Print or electronic
- Common documentary sources relevant to LIS students:
    - Books on Library and Information Science
    - Periodicals and journals
    - Magazines
    - Reference books
    - Research reports
    - Digital repositories
- Documentary sources are records created during the **daily intellectual, professional, or social activities** of individuals or institutions.

- Examples include:
    - Letters and correspondence of scholars
    - Diaries and memoirs
    - Institutional records
    - Research notes
- Although documentary sources may appear informal (e.g., letters or diaries), their use in research requires:
    - A systematic approach
    - Careful evaluation of authenticity and relevance
    - Contextual interpretation

**11. Types of Documentary Sources**

- Documentary sources can be categorized based on:
    - Information contents
    - Physical or material form
- Broad categories:
    - Documentary Sources (By Contents)
    - Documentary Sources (By Form)
- LIS example:
    - A research article (content-based)
    - A microfilm or e-book (form-based)

**12. Categorisation of Documentary Sources**

- Several Library and Information Science scholars have proposed classifications of documentary sources.
- These classifications help librarians in:
    - Organizing collections
    - Understanding document evolution
    - Improving retrieval and access

**13. Categorisation by S. R. Ranganathan**

- Dr. S. R. Ranganathan classified documentary sources based on **physical characteristics** and **chronological development**.
-

**Categories proposed by Ranganathan**

| Category | Description | LIS Examples |
|---|---|---|

| | | |
|---|---|---|
| Conventional | Traditional printed documents | Books, periodicals, maps, atlases |
| Neo-Conventional | Special-purpose documents | Standards, specifications, patents, datasets |
| Non-Conventional | Non-print media | Audio recordings, videos, microforms |
| Meta-Documents | Automatically generated documents | Computer-generated reports, system logs |

- This classification helps LIS professionals understand the **evolution of document formats**.

**14. Categorisation by C. W. Hanson**

- C. W. Hanson divided documentary sources based on **content and function** rather than form.
- His classification was presented in *Introduction to Science Information Work* (1971).
- Hanson categorized documentary sources into:
    - Primary sources
    - Secondary sources

**15. Primary Sources (According to Hanson)**

- Primary sources:
    - Exist independently
    - Contain **original information**
    - Present information for the **first time**
- Characteristics:
    - Based on new observations, experiments, or ideas
    - Not derived or condensed from earlier documents
- LIS-relevant examples of primary sources:
    - Research articles in LIS journals
    - Monographs
    - Textbooks written originally for study
    - Encyclopaedia articles written specifically for publication
    - Dissertations and theses
    - Technical reports
    - Patents and standards
    - Conference proceedings
    - Trade and product literature
- Important viewpoint by Hanson:
    - Even textbooks and encyclopaedias can be primary sources if the content is **specially written and not condensed** from existing works.

**16. Secondary Sources (According to Hanson)**

- Secondary sources:

    - Do not present new information
    - Represent, organize, or condense primary sources
- Purpose:
    - To inform users about the existence of primary documents
    - To provide easier access to original information
- LIS-relevant examples of secondary sources:
    - Library catalogues
    - Bibliographies
    - Indexes
    - Abstracts
    - Indexing and abstracting journals
    - Citation databases
- Importance for LIS students:
    - Essential for literature search
    - Save time and effort
    - Improve research efficiency

**17. Primary–Secondary Sources of Information**

- Hanson also identified a mixed category known as **Primary/Secondary Sources**.
- These sources possess characteristics of both categories.
- Examples:
    - Monographs
    - Conference proceedings
    - Theses and dissertations
- Explanation:
    - Sections presenting new research → Primary
    - Review or survey sections → Secondary
- Limitations of this category:
    - Mixing of characteristics creates ambiguity
    - Many LIS experts consider it to have **limited practical utility**
    - Most libraries prefer clear separation between primary and secondary sources

**18. Categorisation by Denis Grogan**

- Denis Grogan, a British Information Scientist and Educator, classified documentary sources based on the **level of reorganization of information**.
- He grouped documents into:
    - Primary sources
    - Secondary sources
    - Tertiary sources
- This classification is widely accepted in **Library and Information Science** due to its clarity and practical applicability.

**19. Primary Sources (According to Grogan)**

- Primary sources are documents in which the author:
    - Supplies evidence for the first time
    - Describes a new discovery
    - Proposes or derives a new idea
    - Presents new evidence about an earlier proposition
- Characteristics of primary sources:
    - Created at or near the time of the event or research
    - Produced by the original investigator or observer
    - Fundamental and authoritative in nature
    - Not filtered through condensation, interpretation, or evaluation
- LIS-relevant examples of published primary sources:
    - Research articles in LIS journals
    - Patents related to information technology
    - Standards (e.g., cataloguing or metadata standards)
    - Research and technical reports
    - Dissertations and theses
    - Conference papers and proceedings
    - Trade and product literature
    - Classic books in Library Science
- LIS-relevant examples of unpublished primary sources:
    - Laboratory notebooks
    - Memoranda and internal reports
    - Diaries and personal letters of scholars
    - Institutional records

    - Photographs and interview transcripts
- Importance for libraries:
    - Libraries often attempt to acquire unpublished primary materials
    - Such materials are valuable for **historical and archival research**

**20. Secondary Sources (According to Grogan)**

- Secondary sources are documents that:
    - Are derived from the study and analysis of primary sources
    - Select, modify, and arrange original information
    - Present information in a user-friendly and organized format
- Functions of secondary sources:
    - Provide digested and evaluated information
    - Act as a bibliographical key to primary sources
    - Save time and effort of researchers
- LIS-relevant examples of secondary sources:
    - Textbooks on Library and Information Science
    - Monographs
    - Reference books
    - Indexing journals
    - Abstracting journals
    - Reviews of literature or progress

**21. Tertiary Sources (According to Grogan)**

- Tertiary sources are the **last to appear** in the information chain.
- These sources generally:
    - Do not contain subject knowledge
    - Provide information about information
    - Guide users to primary and secondary sources
- Main function:
    - Assist users in identifying, locating, and using other sources
- LIS-relevant examples of tertiary sources:
    - Bibliographies of bibliographies
    - Yearbooks
    - Directories

- Guides to literature
- Guides to organizations
- Lists of accessions
- Lists of research in progress

**22. Overall Categorisation of Documentary Sources**

- The classifications proposed by various experts show that:
  - There is **no rigid boundary** between primary, secondary, and tertiary sources
  - A document may shift categories depending on its use and context
- Among all classifications:
  - Denis Grogan's categorisation is considered the **most systematic and universally accepted**
  - It is widely followed in LIS education and practice
- Grogan explained this classification in detail in his book *Science and Technology: An Introduction to the Literature*.
- This module follows **Grogan's categorisation** for consistency and clarity.

**23. Documentary Sources of Information**

- Documentary sources include **all recorded sources of information**, such as:
  - Books
  - Periodicals and journals
  - Research articles
  - Dictionaries and encyclopaedias
  - Newspapers
  - Dissertations and theses
  - Guidebooks and directories
- These sources are organized based on:
  - Information contents
  - Level of organization
- Broad grouping:
  - Primary sources
  - Secondary sources
  - Tertiary sources

**24. Use of Documentary Sources in Research (Illustrative Example)**

- Libraries and information organizations receive **different types of user queries**.
- Each query requires a **different category of information source**.
- Example (LIS Research Scenario):
    - A researcher starting work on an **unknown topic** first consults:
        - Encyclopaedias → Tertiary sources
        - Subject dictionaries → Tertiary sources
- Purpose of tertiary sources:
    - Provide general overview
    - Clarify basic concepts
    - Suggest further readings
- After understanding the basics, the researcher consults:
    - Secondary sources to know:
        - What has already been written
        - Different viewpoints on the topic
        - Existing interpretations and evaluations
- Finally, the researcher consults:
    - Primary sources to:
        - Examine original studies
        - Identify new or unexplored aspects
        - Conduct fresh research
- This sequence shows that:
    - **Tertiary sources** provide orientation
    - **Secondary sources** provide perspective
    - **Primary sources** form the foundation of original research

**25. Primary Sources**

- The term **primary** means *earliest* or *original*.
- A primary source is one in which information appears **for the first time**.
- UNESCO (1968) defines a primary publication as:
    - *"An original scientific paper describing new research, techniques or apparatus."*
- Primary does **not** mean superior; it only indicates **original creation**.
- Primary sources are created by the **original authors or investigators**, unlike secondary sources, which are derived from primary materials.

- Nature of primary sources:
    - Contain original information
    - Include new raw data
    - Present new interpretations of known facts
    - Report new observations or experiments
    - Represent the first formal appearance of information
- Forms in which primary information usually appears:
    - Journal articles
    - Monographs
    - Research and technical reports
    - Patents
    - Dissertations and theses
    - Reprints of original articles
- Characteristics in LIS context:
    - Information is latest and up to date
    - Sources are widely scattered
    - Difficult to locate without bibliographic tools
- Research significance:
    - Primary sources form the **foundation of all research**
    - Allow researchers to access original ideas, events, or empirical findings
    - Are not filtered through interpretation or evaluation
- LIS examples of primary sources:
    - Original research articles in LIS journals
    - PhD theses in Library and Information Science
    - Conference papers presented at LIS conferences
    - Standards related to cataloguing or metadata
    - Patents related to information technology
    - Library surveys and research reports

**26. Characteristics of Primary Sources**

- Primary sources may include:
    - First-hand observations
    - Contemporary accounts of events

- They:
    - Document events, people, and viewpoints of a specific time period
    - Reflect the thinking and context of the period in which they were created
- Research perspective:
    - In period-based research, the range of possible primary sources becomes broader
    - A single primary source represents **one researcher's perspective**
- Use in research:
    - Should be used along with secondary or tertiary sources to broaden understanding
    - Must be evaluated carefully for bias
- Bias and context:
    - Every primary source may contain conscious or unconscious bias
    - Cultural, social, and historical context of the creator must be considered
- Selection of primary sources depends on:
    - Research question
    - Perspective from which the source is being used
- Reproductions:
    - Copies or digital versions of primary sources remain primary for most research purposes

**27. Problems of Primary Sources**

- Primary sources are:
    - Large in number
    - Widely scattered across publications and platforms
- Major problems faced by users and researchers:
    - Difficult to track all publications in a single discipline
    - Lack of complete bibliographic control for all primary sources
- Information management issue:
    - Due to scattering, information from primary sources needs:
        - Compression
        - Organization
        - Rearrangement
- This leads to the creation of **secondary sources**, which help manage primary literature.
- Bias and objectivity:
    - All primary documents reflect the author's viewpoint

    - Bias may be deliberate or unintentional
- Context limitation:
    - Primary sources may not provide the full context of an issue
    - Often reflect only one viewpoint or the dominant thinking of the time
- Research implication:
    - Researchers must rely on secondary sources for interpretation and broader context
    - Primary sources alone are rarely sufficient for comprehensive understanding

**28. Examples of Primary Sources**

- Primary sources are diverse, numerous, and scattered.
- Typical examples relevant to LIS students include:
    - Primary periodicals and scholarly journals
    - Newspapers reporting events contemporaneously
    - Technical and research reports
    - Dissertations and theses
    - Conference papers and proceedings
    - Patents
    - Standards
    - Trade and product literature

**LIS-Oriented Summary Table**

| Type | LIS Examples |
|---|---|
| Scholarly Communication | Research articles, conference papers |
| Academic Research | Theses, dissertations |
| Technical Information | Standards, patents |
| Current Information | Newspapers, periodicals |
| Institutional Research | Library surveys, reports |

**29. Periodicals**

- A **periodical** is a publication with a **distinctive title** that appears at **regular or stated intervals**.
- There is **no predetermined end** to its publication.
- It contains contributions such as:
    - Research articles
    - Editorials
    - Features and columns
    - Reviews and reports

    - News items

- Periodicals are an **important primary source** of information, especially for **current and up-to-date knowledge**.
- UNESCO defines a periodical as:
    - *"A publication that constitutes one issue in a continuous series under the same title, published at regular or irregular intervals, over an indefinite period, individual issues being numbered consecutively or dated."*
- Key LIS-related features of periodicals:
    - Provide the **latest developments** in a subject
    - Newly received issues are **displayed prominently** in libraries
    - Older issues are replaced by newer ones
- Terminology:
    - Periodicals are also known as **serials** or **journals**
    - **Magazines** are a common type of periodical
- Distinction between journals and magazines (LIS perspective):
    - Journals are academic or professional
    - Magazines are general, non-academic, and not peer-reviewed

**30. Types of Periodicals**

- Periodicals are classified based on:
    - Nature of content
    - Target audience
    - Sponsoring organization

**Scholarly Periodicals**

- Report **original research or experimentation**
- Aim to:
    - Increase knowledge
    - Present new ideas
    - Encourage scholarly discussion
- Target users:
    - Researchers
    - Faculty members
    - LIS students
- Characteristics:

    - Articles written by subject experts
    - Articles are signed
    - Peer review process is followed
    - Also known as **refereed journals**
- Publishers:
    - Professional associations
    - Research institutions
    - Universities
- LIS-relevant examples:
    - *Indian Journal of Library and Information Science*
    - *Journal of Documentation*
    - *College & Research Libraries*

**Trade Journals**

- Focus on **practical and professional information**
- Discuss:
    - Industry trends
    - New products and services
    - Technology updates
    - Legal and business information
- Target users:
    - Professionals working in a field
    - Students preparing for professional practice
- Characteristics:
    - Articles written by experts for practitioners
    - Include advertisements and illustrations
    - Do not follow peer review
- Publishers:
    - Trade associations
    - Professional bodies
    - Commercial organizations
- LIS-related examples:
    - *Library Journal*

- *Publishers Weekly*
- *Information Today*

**Popular and General-Interest Periodicals**

- Cover:
  - Current affairs
  - General knowledge
  - Hobbies and interests
- Target audience:
  - General public
- Characteristics:
  - Simple and non-technical language
  - Articles written by editorial staff or freelance writers
  - Attractive layout with photographs and graphics
  - Contain advertisements
  - No peer review
- Publishers:
  - Commercial organizations
  - Interest groups
- Examples:
  - *Readers Digest*
  - *Time*
  - *Newsweek*
  - *Scientific American*

**Summary Table: Types of Periodicals**

| Type | Purpose | Peer Review | Audience | LIS Examples |
|---|---|---|---|---|
| Scholarly | Research & knowledge creation | Yes | Researchers, students | Journal of Documentation |
| Trade | Professional practice | No | Professionals | Library Journal |
| Popular | General awareness | No | General public | Time |

**31. Publication Pattern of Periodicals**

- Periodicals are published at different frequencies such as:

    - Daily
    - Weekly
    - Fortnightly
    - Monthly
    - Quarterly
    - Annual
    - Irregular
- Identification features:
    - Each volume has a **volume number**
    - Each issue has an **issue number**
- Pagination:
    - Scholarly periodicals have **continuous page numbering** throughout a volume
    - Magazines and popular journals start page numbering from **page one** in each issue
- Additional features:
    - Scholarly journals provide:
        - Title page
        - Table of contents
        - Index at the end of a volume
- Electronic access:
    - Some journals are available as **e-journals**
    - Access may be limited to:
        - Table of contents and abstracts
        - Full text (depending on institutional subscription)

**32. Advantages of Periodicals**

- Provide **current and up-to-date information**
- Cover latest:
    - Research findings
    - Products and technologies
    - Trends and theories
- Discuss current events **much earlier than books**
- Best source for:
    - Ephemeral information

    - Highly specialized topics
- Physical advantages:
    - Portable
    - Easy to handle
- Coverage advantages:
    - Periodicals exist for **every subject and interest area**
    - Provide access to **hard-to-find information**
- Content advantage:
    - Short articles allow coverage of **multiple topics** within a single volume

**33. Newspapers**

- A **newspaper** is both a **source** and a **storehouse of information**.
- It is a scheduled publication containing:
    - News of current events
    - Informative articles
    - Editorials and opinion columns
    - Features, advertisements, and announcements
- Physical characteristics:
    - Usually printed on inexpensive, low-grade paper known as **newsprint**
    - Issued periodically, most commonly **daily or weekly**
- Functional importance:
    - Keeps readers well informed about **current affairs**
    - Plays a significant role in **shaping public opinion**

**34. Newspapers as Primary or Secondary Sources**

- LIS experts differ in opinion on whether newspapers are **primary sources**.
- The status depends largely on the **nature of the content**.
- Newspapers as **primary sources** when they contain:
    - First-hand accounts by reporters who witnessed events directly
    - Opinion pieces and editorials
    - Letters to the editor
    - First-person narratives
- LIS examples of newspaper primary sources:
    - A reporter’s eye-witness account of a natural phenomenon (e.g., eclipse)

    - An editorial expressing the newspaper's viewpoint
    - A letter written by a librarian discussing professional issues
- Newspapers as **secondary sources** when they contain:
    - Reports compiled from witnesses or second-hand information
    - News gathered from agencies or interviews
- Illustrative example:
    - A climber writing about climbing Mt. Everest → Primary source
    - A journalist reporting the same event based on interviews → Secondary source

**35. Essential Features of Newspapers**

- Newspapers generally fulfill the following criteria:
    - **Accessibility** – easily available to the public
    - **Periodicity** – published at regular intervals
    - **Currency** – provide up-to-date information
    - **Universality** – cover a wide range of subjects

**36. Categories of Newspapers**

- Based on frequency of publication:
    - **Daily newspapers** – issued every day
        - Examples: *The Times of India*, *The Hindu*, *The Hindustan Times*, *The Economic Times*
    - **Weekly newspapers** – published once a week
        - Examples: *The Newage Reporter*, *Union Times Today*
    - **Fortnightly newspapers** – published once in two weeks
        - Examples: *Northeast Mail*, *NGO India*
- Based on coverage:
    - **National newspapers** – nationwide circulation
        - Examples: *The New York Times*, *The Times of India*
    - **International newspapers** – international editions
        - Examples: *The International New York Times*, *The Daily Telegraph*, *The Wall Street Journal Asia*
- Based on medium:
    - **Online newspapers** (print + digital)
        - Examples: *Business Standard*, *The Hindu*
    - **Web-only newspapers**

        - Examples: *The Yorkshire Times*, *Southport Reporter*

**37. Physical Formats of Newspapers**

- Modern newspapers are generally published in three sizes:

| Format | Approximate Size | Description |
|---|---|---|
| Broadsheet | 600 × 380 mm | Traditional large format |
| Tabloid | 380 × 300 mm | Compact and easy to handle |
| Berliner (Midi) | 470 × 315 mm | Medium-sized format |

**38. Contents and Presentation of Newspapers**

- Newspapers cover:
    - International, national, state, and local news
    - Editorials and opinion columns
    - Feature articles
    - Entertainment and cultural items
- Visual elements:
    - Photographs and illustrations
    - Coloured and glossy supplements
- Digital access:
    - Many newspapers are available online
    - Access may be limited to:
        - Table of contents and abstracts
        - Full text, depending on subscription

**39. Advantages of Newspapers**

- Economical compared to other primary sources
- Articles are generally:
    - Well-researched
    - Edited for accuracy
    - Based on reliable sources
- High availability:
    - Easily accessible
    - Available in print and digital formats
- Value-added features:
    - Weekly or special supplements
    - Coverage of specialised areas such as education, careers, and culture

- LIS relevance:
    - Useful for current awareness services
    - Important for reference and archival work

**40. Disadvantages of Newspapers**

- Not real-time:
    - News may become outdated by the time it reaches readers
- Possible bias:
    - Editorial policy may reflect ownership or political ideology
- Environmental concerns:
    - High consumption of paper and energy
- Competition from faster media:
    - Internet and digital platforms deliver news more quickly

**41. Technical Reports**

- A **technical report** is a formal document prepared to communicate **technical or scientific information** in a clear and structured manner.
- It is usually written by a **researcher or expert** to report the results of a **project, experiment, survey, or investigation**.
- Technical reports are designed for a **specific audience** with defined information needs.
- Key features:
    - Organized into sections so different readers can access different levels of detail
    - Commonly used in **science, technology, engineering, and applied research**
    - Often contain information that is **current and not yet published** in journals
- Purpose and LIS relevance:
    - Provide background and detailed technical data on a topic
    - Save time for users who need **ready-to-use technical analysis**
    - Frequently consulted in **R&D libraries, special libraries, and industrial libraries**
- Illustrative example (use case):
    - An entrepreneur planning a **fruit processing industry** may require a technical report covering:
        - Seasonal availability of fruits
        - Manpower requirements
        - Technology and machinery
        - Regional feasibility

    - Such information is provided in a **single technical background report** rather than scattered library sources.
- Common characteristics of technical reports:
    - Often published **before corresponding journal articles**
    - More detailed results, but less theoretical background
    - Usually **not peer reviewed**
    - May have **restricted or classified access**
    - Extensive use of technical terminology and acronyms
- Importance:
    - Quick dissemination of research findings
    - Valuable source of **primary information**
- Examples:
    - Wood, Alan: *Software Reliability Growth Models*. Tandom Technical Report, HP Labs, 1996.
    - Bin Fan: *Algorithmic Engineering Towards More Efficient Key-Value Systems*. Computer Science Technical Reports 2013, Carnegie Mellon University.

**42. Dissertations and Theses**

- A **dissertation or thesis** is a document submitted in support of an **academic degree**.
- It presents the author's:
    - Original research
    - Findings
    - Analysis and conclusions
- Purpose:
    - To inform and contribute to scholarly knowledge
    - To demonstrate the researcher's ability to:
        - Formulate a research problem
        - Apply research methodology
        - Analyze and report results
- LIS relevance:
    - Collected by **academic and research libraries**
    - Important source of **original and unpublished research**
    - Increasingly available in **electronic form (ETDs)** via institutional repositories
- Nature of research in theses/dissertations:
    - New data on significant problems

- Innovative research methods
- New analysis of existing datasets
- Development and testing of new methodologies

**43. Difference between Dissertation and Thesis**

- The distinction varies across universities and countries.
- Dictionaries often define both as similar, but in practice some differences exist.

**Conceptual Difference (General Academic Understanding)**

| Aspect | Thesis | Dissertation |
|---|---|---|
| Nature of work | Original research | Based on existing research with analysis |
| Research contribution | New findings or theory | Interpretation and synthesis |
| Degree level (commonly) | Doctoral or higher degree | Postgraduate or professional degree |
| Emphasis | Creation of new knowledge | Application and evaluation |

- Note:
  - Many universities use the terms interchangeably
  - LIS professionals should rely on **institutional definitions**
- Examples:
  - Murali D.: *Studies on p53 and its role in cell proliferation*, PhD thesis, JNU, New Delhi, 2014.
  - Khurana, Poonam: *Role of ethics in personal, team and organisational effectiveness*, PhD thesis, University of Delhi, 2013.
  - Chopra, Shika: *SMART Materials and Structures: A survey of published literature*, Dissertation, INSDOC (NISCAIR).

**44. Conference Papers**

- A **conference** is a professional meeting where experts share knowledge through:
  - Paper presentations
  - Posters
  - Panel discussions
- **Conference papers** are published as:
  - Conference proceedings
  - Symposium or workshop reports
- Characteristics:
  - Present **latest and emerging research**
  - Often precede journal publication
  - May reflect early-stage research
- Publication format:
  - Usually published as books

    - Sometimes in multiple volumes
- LIS importance:
    - Essential source of **current research trends**
    - Useful in fast-developing fields
- Examples:
    - *Proceedings of the National Academy of Sciences, India*, Section A, Springer, 2014.
    - *57th All India Library Conference Proceedings – Knowledge Society: Innovations in Librarianship*.
    - *Proceedings of 8th International Convention CALIBER 2011*, Goa University.

**45. Patents**

- A **patent** is a legal right granted by a government authority for an invention.
- It gives the inventor the **exclusive right** to:
    - Make
    - Use
    - Sell the invention for a specific period
- Nature of inventions:
    - New product
    - New process
    - New technical solution to a problem
- LIS and information value:
    - Major source of **scientific and technical information**
    - Protects intellectual property
    - Helps track technological innovation
- Legal aspect:
    - Patent infringement is a **civil offence**
    - Rights are enforced through civil law

**46. Advantages of Patents**

- According to World Intellectual Property Organization, patent documents:
    - Contain information not available elsewhere
    - Follow a standardized structure:
        - Abstract
        - Bibliographic details

        - Description
        - Drawings
    - Are classified by technical fields
    - Demonstrate industrial applicability
    - Cover almost every field of technology
- LIS relevance:
    - Widely used in **patent libraries and special libraries**
    - Important for innovation and technology forecasting

**47. Standards**

- A **standard** is a documented agreement that provides **rules, guidelines, or characteristics** to ensure order, quality, safety, and interoperability.
- Standards are used in **daily life and professional domains**, including:
    - Manufacturing and industry
    - Healthcare and transport
    - Media and communication
    - **Libraries and information services**
- Definition (British Standards):
    - A standard is an *agreed way of doing something*—covering products, processes, services, or materials.
- Purpose of standards:
    - Maintain **quality control and efficiency**
    - Enable **standardization** of products and services
    - Facilitate **exchange and interoperability**
    - Enhance **consumer confidence and safety**
- Evolution:
    - Initially developed for **industrial products**
    - Later adopted by the **services sector**, including libraries
- Standards can be:
    - Voluntary or mandatory
    - Company-level, national, regional, or international
    - Highly specific (product-based) or general (management practices)
- Key standard-setting organizations (important for LIS):
    - International Organization for Standardization (ISO)

- National Information Standards Organization (NISO)
- Bureau of Indian Standards (BIS)

**Why Standards Matter (Crunchy Facts)**

- Without standards:
  - Products may be unsafe or incompatible
  - Quality may be unreliable
  - Consumers may face monopolies and exploitation
  - Libraries cannot ensure interoperability of systems
- With standards:
  - Uniform cataloguing and metadata
  - Seamless data exchange between libraries
  - Reliable digital preservation and access

**Examples of Standards**

| Standard Code | Subject | LIS Relevance |
|---|---|---|
| IS 5835:1970 | Estimation of Vitamin D | Health & food information |
| IS 4579:1968 | Television picture tubes | Media technology |
| ISO 2709 | Bibliographic record format | Library automation & MARC |

**48. Trade and Product Bulletins**

- **Trade and product bulletins** are publications issued by:
  - Manufacturers
  - Publishers
  - Distributors
  - Commercial organizations
- Coverage includes:
  - Books and publishing tools
  - Chemicals and pharmaceuticals
  - Household goods
  - Research instruments and machinery
- Core purpose:
  - Describe **features, specifications, and uses** of products
  - Promote **sales to potential customers**
- Nature as an information source:
  - Considered **primary sources**

- Information is **unique** and usually **not published elsewhere**

- LIS significance:
  - Useful for **collection development decisions**
  - Important in **special and industrial libraries**

**Examples of Trade & Product Bulletins**

| Bulletin | Issuing Body |
|---|---|
| Foreign Trade Enquiries Bulletin | Spice Board of India |
| Purolite Product Bulletin | Purolite Company, USA |
| Phenol Product Information Bulletin | Shell Chemicals, USA |

**Crunchy Exam Tip**

- **Trade literature = promotional + technical + primary source**

**49. Other Primary Sources**

- Primary sources are not limited to printed documents.
- They include **any original material** that provides first-hand evidence.
- Non-traditional primary sources include:
  - Interviews and oral histories
  - Audio and video recordings
  - Paintings, sketches, and photographs
  - Computer software and source code
  - Emails, websites, and web archives

**Broad Categories of Other Primary Sources**

| Category | Examples |
|---|---|
| Personal Records | Letters, diaries, memoirs |
| Visual Sources | Photographs, posters, paintings |
| Media Sources | News footage, audio/video tapes |
| Official Records | Minutes of meetings, treaties, legal cases |
| Data Sources | Surveys, statistics, opinion polls |
| Creative Works | Literature, art, music, films |
| Digital Objects | Software, email archives, websites |
| Institutional Records | Government and organizational files |

- Examples particularly relevant to LIS students:
  - Minutes of library committee meetings
  - Email correspondence on policy decisions
  - Archival web documents
  - Library management software source files

**Key Characteristics (Crunchy Facts)**

- Primary sources:
    - Bring researchers **closest to the original event or idea**
    - Reflect **individual viewpoints**
    - Often **unique and rare**
    - May be available in **very limited libraries or archives**
- Selection depends on:
    - Research topic
    - Time period studied
    - Research objectives
- LIS professional role:
    - Identification
    - Preservation
    - Access and ethical use of primary sources

**50. Secondary Sources**

- **Secondary sources** analyze, review, interpret, or summarize information contained in **primary sources**.
- They do **not** present new or original research.
- Even factual descriptions are considered secondary unless they are based on **direct observation or participation**.
- Nature of secondary sources:
    - Provide **second-hand information**
    - Information is digested, reworded, evaluated, or interpreted
    - Often depend on both primary and other secondary sources
- Functional role:
    - Place primary information into **historical, intellectual, or disciplinary context**
    - Serve as the **main analytical literature** in most disciplines
- Relationship with primary sources:
    - One step removed from original evidence
    - Built entirely upon the existence of primary sources

**Primary vs Secondary (Quick View)**

| Aspect | Primary Source | Secondary Source |
|---|---|---|
| Nature | Original research | Analysis of research |
| Information | First appearance | Interpreted & evaluated |
| Example (LIS) | Research article on Cloud Computing | Review article on Cloud Computing |

| Role | Evidence | Explanation |
|---|---|---|

Crunchy exam fact: *Secondary sources = interpretation + evaluation + synthesis*

**51. Need for Secondary Sources**

- Secondary sources are essential because they:
    - Present primary literature in **condensed and organized form**
    - Help users identify the **existence and location** of primary documents
    - Provide **expert evaluation** of primary research
    - Offer **multiple perspectives** on the same topic
    - Assist researchers in forming their **own opinions**
    - Save **time and effort** by summarizing large volumes of literature
    - Broaden the **scope and depth** of research
- LIS relevance:
    - Core tools for **literature search**, **reference service**, and **research guidance**

**52. Categories of Secondary Sources**

- Based on the level of **reorganization and analysis**, secondary sources are grouped into:
    - Books
    - Reference books
    - Indexing and abstracting periodicals

**53. Books (Secondary Sources)**

- A **book** is a written or printed work with independent physical existence.
- UNESCO defines a book as:
    - *A bound non-periodical publication having 49 or more pages, excluding cover pages.*
- Key characteristics:
    - Deal with **one subject** in a continuous manner
    - Provide synthesized and organized knowledge
    - Easy to store, transport, and use
- LIS perspective:
    - Books are often called **monographs**
    - Represent one of the **oldest and most reliable** information carriers
    - Used for teaching, learning, and research
- Types of books:

    - Single or multi-volume
    - General books
    - Textbooks
    - Reference books
- Crunchy fact:*Books compress years of research into a single usable source.*

**54. Text Books**

- A **textbook** supports a specific **teaching programme or curriculum**.
- Defined as a printed and bound work designed for a **course of study**.
- Features:
    - Present established knowledge
    - Reflect the academic vision of a discipline
    - Structured logically for learning progression
- Why textbooks are secondary sources:
    - They combine findings from **multiple primary studies**
    - They summarize research rather than present original work
- LIS relevance:
    - Foundation material for LIS students
    - Used extensively in academic libraries
- Examples:
    - Edward Evans & Patricia Layzell Ward: *Management Basics for Information Professionals*.
    - Arlene G. Taylor: *Introduction to Cataloging and Classification*.

**55. Reference Books**

- Reference books are designed for **consultation**, not continuous reading.
- Definitions:
    - Merriam-Webster: books intended primarily for reference
    - Business Dictionary: tools for locating **specific information**
- Key features:
    - Looked up, not read cover-to-cover
    - Provide **organized and structured information**
    - Act as **gateways** to other sources
- Functional role:
    - Address **specific information queries**

- Support reference and information services

**Common Reference Books**

| Type | Purpose | LIS Use |
|---|---|---|
| Encyclopaedia | Overview of subjects | Background information |
| Dictionary | Meaning of terms | Terminology clarification |
| Directory | Names & addresses | Institutional information |
| Handbook | Practical facts | Ready reference |
| Atlas | Maps & geography | Spatial information |

### 56. Indexing and Abstracting Periodicals

- These are **secondary periodicals** that scan primary literature regularly.
- Functions:
  - Select relevant documents
  - Arrange them systematically
  - Inform researchers about new publications
- Publication frequency:
  - Weekly
  - Monthly
  - Quarterly
- Coverage:
  - Journal articles
  - Research reports
  - Conference papers
- Importance:
  - Keep researchers **current**
  - Enable **retrospective literature searches**
  - Prevent valuable primary literature from remaining unused
- Formats available:
  - Print
  - CD-ROM
  - Online databases

### 57. Indexing Periodicals

- Indexing periodicals:
  - List relevant items with **complete bibliographic details**

    - Do **not** provide abstracts
- Bibliographic elements included:
    - Author(s)
    - Title of article
    - Journal title
    - Volume and issue
    - Year
    - Page numbers
- Arrangement:
    - Subject headings
    - Classification numbers
- Additional access points:
    - Author index
    - Subject index

**Types of Indexing Periodicals**

| Type | Coverage | Examples |
|---|---|---|
| General Indexing | Broad subject coverage | *Current Contents* |
| Subject Indexing | Specific discipline | *Library Literature & Information Science Index* |
| Indexes to Individual Periodicals | Single journal | *Guide to Indian Periodical Literature* |

**58. Abstracting Periodicals**

- **Abstracting periodicals** provide:
    - Condensed summaries (**abstracts**) of selected documents
    - Complete **bibliographical details** to identify and locate originals
- Key functions:
    - Help users decide whether to consult the **full document**
    - Sometimes a **well-prepared abstract** can substitute the original document
    - Save researchers' **time and effort**
- Common features:
    - Abstract + bibliographic record
    - Author index
    - Subject index

- Regular publication (weekly/monthly/quarterly)

- LIS relevance:
  - Essential tools for **current awareness services (CAS)**
  - Crucial for **retrospective literature searches**

**Indexing vs Abstracting (Quick Comparison)**

| Aspect | Indexing Periodicals | Abstracting Periodicals |
|---|---|---|
| Content | Bibliographic details only | Bibliographic details + abstract |
| User decision | Requires checking original | Decision possible from abstract |
| Time saving | Moderate | High |
| Research value | Identification | Identification + evaluation |

Examples:

- *Chemical Abstracts* – by Chemical Abstracts Service
- *Biological Abstracts* – by BIOSIS (Thomson Reuters)

- Crunchy exam tip:
  *Abstracting periodicals = indexing + evaluation.*

**59. Bibliographies**

- A **bibliography** is a **systematic list of documents** compiled on a common principle such as:
  - Subject
  - Author
  - Language
  - Period
  - Place of publication
- Nature:
  - Can be **comprehensive** or **selective**
  - Entries are arranged systematically
  - Each entry provides **full bibliographic details**
- Why bibliographies are secondary sources:
  - They compile already published **primary literature**
  - Do not present original research
- LIS importance:
  - Act as a **key to primary knowledge**
  - Bridge the gap between **documents and users**
  - Save significant **search time**

**Uses of Bibliographies**

- Help to:
    - Identify important sources on a topic
    - Trace earlier research
    - Locate works by or about a person
    - Decide where to search further

**Types of Bibliographies**

| Type | Coverage | Example |
|---|---|---|
| National Bibliography | Publications of a country | *British National Bibliography* |
| Trade Bibliography | Books in trade | *Books in Print (USA)* |
| Subject Bibliography | Specific discipline | Subject-wise LIS bibliographies |

- Examples:
    - *The British National Bibliography (BNB)* – UK & Ireland publications
    - *American Book Publishing Record*® – US cataloguing records
    - *Books in Print* – United States
- Crunchy exam fact:
  *Bibliography = roadmap to literature, not literature itself.*

**60. Survey Publications**

- **Survey publications** arise when **large volumes of information** exist on a subject.
- They consolidate and synthesize primary literature to provide:
    - Overviews
    - Trends
    - State-of-the-art status
- Common forms:
    - Review articles
    - State-of-the-art reports
    - Trend reports
    - Technical digests
    - Treatises
    - Annual reviews
- Purpose:
    - Highlight **significant literature**
    - Depict **progress of a discipline**

    - Present information in **simplified form** for specific users
- LIS relevance:
    - Ideal starting points for **advanced research**
    - Support teaching, policy-making, and R&D

**Examples of Survey Publications**

| Type | Example |
|---|---|
| Annual Reviews | *Annual Review of Financial Economics* |
| Advances Series | *Advances in Electrical and Computer Engineering* |
| Treatise | George Reisman – *Capitalism: A Treatise on Economics* |
| State-of-the-Art | *State-of-the-Art Report on Fiber Reinforced Concrete* |

**61. Tertiary Sources**

- **Tertiary sources** are based on **primary and secondary sources**.
- They do **not** provide subject knowledge directly.
- Their main role is to **guide users** to relevant primary or secondary sources.
- Position in information cycle:
    - Primary → Secondary → **Tertiary (last to appear)**
- Characteristics:
    - Highly condensed and compiled
    - Usually factual and neutral
    - Often **no single author credit**
    - Provide orientation and direction
- LIS significance:
    - First stop for users **new to a topic**
    - Support reference and information services

**Role of Tertiary Sources (Easy View)**

| Function | Explanation |
|---|---|
| Orientation | Provide overview of a subject |
| Navigation | Direct users to detailed sources |
| Access | Help select most relevant sources |
| Efficiency | Reduce time spent in searching |

**62. Examples of Tertiary Sources**

- Common tertiary publications include:
    - Guides to the literature
    - Guides to reference sources

    - Bibliography of bibliographies
    - Almanacs
    - Directories
    - Handbooks
    - Manuals
    - Guides
- Special note on textbooks:
    - Some scholars treat textbooks as tertiary when they **only summarize**
    - However, **most LIS experts classify textbooks as secondary sources**

**Primary vs Secondary vs Tertiary (Final Snapshot)**

| Aspect | Primary | Secondary | Tertiary |
|---|---|---|---|
| Originality | Original | Interpreted | Compiled |
| Purpose | Evidence | Analysis | Guidance |
| Example | Research article | Review article | Encyclopedia |
| User stage | Advanced research | Evaluation | Initial orientation |

Crunchy final fact:*Tertiary sources tell you **where to look**, not **what to conclude**.*

**63. Tertiary Sources (Continued)**

- Tertiary sources guide users to **primary and secondary sources** rather than presenting original subject knowledge.
- They are typically **compilations**, **neutral**, and **last to appear** in the information cycle.
- Best used for **orientation**, **quick facts**, and **source discovery**.

**64. Almanacs**

- Originally calendars with astronomical notes; modern almanacs present **global statistical and descriptive data**.
- Coverage typically includes:
    - Geography, government, population
    - Economy and business
    - Health and medicine
    - Science & Technology
    - Transport, sports, awards, and prizes
- Include summaries of **previous year's events** and recent developments.
- Published **annually**; closely resemble **yearbooks**.

- Key distinction: **almanacs include astronomical data**, yearbooks usually do not.

**Why Almanacs Matter (Crunchy Facts)**

- Single-source snapshot of **facts + trends + statistics**
- Heavily reliant on **government data**
- Ideal for **ready reference** and **general orientation**

**Examples**

- *Kalnirnay* (India)
- *Whitaker's Almanack* (United Kingdom)
- *Astronomical Almanac* (USA)

**65. Handbooks**

- Comprehensive works on a **specific topic**, structured for **quick reference**.
- Combine features of **dictionaries** (definitions) and **encyclopaedias** (explanations).
- Emphasize **critical data**, **tested procedures**, **standards**, and **guidelines**.
- Widely used in **science, technology, industry, healthcare**, and LIS practice.

**Producer & Audience**

- Often produced by **professional organizations**.
- Versions may target:
    - Technical staff
    - Office personnel
    - Industrial workers
    - Shareholders or the general public

**Examples**

- *MLA Handbook for Writers of Research Papers*, 7th ed., 2009
- *Perry's Chemical Engineers' Handbook*, 8th ed., 2007
- *CRC Handbook of Chemistry and Physics*, 92nd ed., 2011
- Saracevic & Wood: *Consolidation of Information*, UNESCO, 1981

**Quick Comparison**

| Aspect | Handbook | Textbook |
|---|---|---|
| Use | Quick reference | Teaching/learning |
| Content | Procedures & data | Conceptual exposition |
| Reading | Non-linear | Linear |

**66. Manuals**

- **Instructional documents** explaining *how to do* a task or operate a system.
- Concise, step-by-step, and **procedure-focused**.
- Commonly available **online** for products and software.

**Types of Manuals**

- **Technical manuals** – operation/maintenance of equipment
- **Procedure manuals** – organizational processes
- **Laboratory manuals** – experiments and protocols

**Examples**

- *PHP Manual*, 2014
- *Merck Manual of Medical Information*, 2nd ed., 2003
- Sony product manuals

**Crunchy Fact**

- Manuals = **task execution**, not theory.

**67. Directories**

- Ready-reference tools listing **names and addresses** of people and organizations.
- Entries arranged **alphabetically** or **class-wise**.
- Provide contact details, functions, and key officials.

**Types of Directories**

| Type | Scope | Examples |
|---|---|---|
| General | Broad coverage | Telephone directory |
| Special | Profession/industry-specific | Trade & business directories |

**Examples**

- *Universities Handbook*, 32nd ed., 2010
- *The Europa World of Learning*, 63rd ed., 2013
- *Kothari Industrial Directory of India*, 40th ed., 1996
- *IndiaMART*

**68. Bibliography of Bibliographies**

- A **meta-bibliography** listing **bibliographies themselves**.
- Organized systematically to lead users to **useful bibliographic tools** across fields.
- Ideal starting point for **comprehensive literature discovery**.

**Examples**

- Rudolph C. Troike: *Bibliography of Bibliographies of the Languages of the World*, 1990

- William Filby: *A Bibliography of American County Histories*, 2002

**Crunchy Fact**

- Bibliography of bibliographies = **index to indexes**.

**69. Guides to the Literature**

- Direct users to **key sources** within a subject area.
- Include annotated lists of:
    - Books, journals, databases
    - Indexing/abstracting services
    - Reference works
    - Associations and publishers
- Especially strong in **science and technology** domains.

**Examples**

- Diane Schmidt: *A Guide to Reference and Information Sources in Plant Biology*, 2006
- Max Marmor & Alex Ross (Eds.): *Guide to the Literature of Art History*, 2004
- *Computer Science and Computing: A Guide to the Literature*, 2006
- Thelma Freides: *Literature and Bibliography of the Social Sciences*, 1973

**Related Category: Directories of Periodicals**

- Identify and describe **journals relevant to a field**.
- Functionally similar to literature guides.

**Examples**

- *World List of Social Science Periodicals* (UNESCO)
- *Ulrich's Periodicals Directory*, 52nd ed., 2014

**70. Guides to the Reference Sources**

- Help identify the **best reference works** by field or type (dictionary, encyclopedia, reviews).
- Essential when users or staff struggle to choose **appropriate reference tools**.
- Usually arranged systematically with evaluative notes.

**Examples**

- *Guide to Reference Books*, 11th ed. (Winchell)
- *Guide to Reference* (online successor, since 2008)
- Walford: *Walford's Guide to Reference Material*, 3 vols., 1998
- Ray Lester (Ed.): *The New Walford Guide to Reference Resources*, Vol. 1, 2005

**71. Union Catalogues**

- Catalogues listing holdings of **two or more libraries**.
- Scope may be **local, regional, or national**; may cover books, periodicals, or special collections.

**Functions**

- **Location tool** for materials
- Enable **inter-library loan (ILL)**
- Support **resource sharing and networking**

**Modern Context**

- Computerization has made union catalogues:
    - Easier to maintain
    - Faster to search
    - More accurate and up to date

**Crunchy Exam Fact**

- Union catalogue = backbone of **library cooperation**.

**72. Internet Information Resources**

- **Internet Information Resources** are resources available in **electronic format** that:
    - Provide information or indicators to information
    - Are accessible through the **Internet**
    - Include both **documents and non-documents**
- These resources support:
    - Teaching and learning
    - Research and innovation
    - Distance and continuing education
    - Library and information services
- Examples include:
    - E-journals and e-books
    - Online databases
    - Institutional repositories
    - Multimedia learning resources
    - Subject gateways and portals

**Crunchy LIS Fact** *Internet information resources remove the constraints of time, place, and physical format.*

**73. Publishers of Electronic Information Resources**

- Publishers of electronic information resources include:
    - Traditional print publishers offering electronic versions
    - New enterprises producing **born-digital resources**
    - Scholarly societies
    - Universities and research institutions
    - Electronic aggregators
    - Non-commercial publishers and individuals
- Growth drivers:
    - High demand for **online access**
    - Expansion of **distance education**
    - Need for **current and multimedia-rich content**

**74. Categories of Internet Information Resource Publishers**

**(a) Traditional Commercial Publishers**

- Established print publishers providing **electronic versions** of their publications.
- Offer access through:
    - Dedicated websites
    - Proprietary platforms
    - Web-based interfaces
- Examples (major for LIS students):
    - Elsevier – ScienceDirect
    - Springer – SpringerLink
    - Emerald – Emerald Insight
    - Web of Science
    - American Institute of Physics

**Publishing Models Used**

| Model | Description | Example |
|---|---|---|
| In-house platforms | Publisher develops and maintains own system | Elsevier |
| Hosted by others | Smaller publishers use external platforms | Learned societies |
| Tech service providers | Third-party hosting & CMS | Catchword |

Crunchy fact: *High cost of web-enabling content drives publishers toward shared platforms and aggregators.*

**(b) New E-Publishing Ventures**

- New digital-first publishers and software companies.

- Produce resources that are **born digital**.
- Focus on:
    - Online courseware
    - Multimedia learning products
    - Interactive educational content
- Strongly support:
    - E-learning
    - MOOCs
    - Skill-based education
- LIS relevance:
    - Used extensively in **distance and continuing education**

**(c) Scholarly Societies**

- Professional and academic societies publishing their content online.
- May:
    - Develop their own web platforms
    - Use third-party hosting services
- Major examples:
    - Association for Computing Machinery (ACM)
    - IEEE
    - Society for Industrial and Applied Mathematics (SIAM)
- LIS importance:
    - Highly authoritative scholarly content
    - Core resources for **research libraries**

**(d) Universities and Research Institutions**

- Host **specialized digital collections**, such as:
    - Online courseware
    - Subject gateways
    - Academic portals
    - Institutional repositories
- Actively involved in:
    - Electronic theses and dissertations (ETDs)
    - Digital libraries

- Technology platforms used:
    - Blackboard
    - WebCT
- LIS relevance:
    - Support **open access initiatives**
    - Preserve institutional research output

**(e) Electronic Aggregators**

- **Electronic aggregators** collect resources from multiple publishers and provide:
    - Unified access
    - Single search interface
- Functions:
    - Full-text access
    - Search and browse services
    - Subscription-based delivery
- Examples:
    - JSTOR
    - OCLC – Electronic Collections Online

**Why Aggregators Matter (Crunchy Facts)**

- Reduce platform fragmentation
- Simplify access management
- Save subscription and training costs

**(f) Non-Commercial Publishers and Individuals**

- Include:
    - Academic groups
    - Research communities
    - Individual scholars
- Characteristics:
    - Provide **free or open-access resources**
    - Create **meta-resources** and subject gateways
- LIS importance:
    - Support **open knowledge movement**
    - Widely used for **reference and discovery**

**75. Summary Table: Internet Information Resource Publishers**

| Category | Nature | LIS Importance |
|---|---|---|
| Commercial Publishers | Paid scholarly content | Core academic resources |
| E-Publishing Ventures | Born-digital content | E-learning support |
| Scholarly Societies | Authoritative research | High research value |
| Universities | Repositories & courseware | Open access & ETDs |
| Aggregators | Multi-publisher access | Unified discovery |
| Non-Commercial | Free resources | Open knowledge |

**76. Types of Electronic Resources**

- **Electronic resources** are information resources available in **digital form** and accessed via the **Internet**.
- Some follow **traditional publishing models** (print → electronic), while others are **born-digital** and innovative.
- With advances in technology, **new models of scholarly communication** continue to emerge.
- The **National Centre for Scientific Information (NCSI)** categorizes Internet-based information resources into various types, explained below.

**77. Primary Electronic Sources of Information**

- Primary electronic sources present **original information** or **first-time communication** in digital form.
- They are crucial for:
    - Current awareness
    - Scholarly interaction
    - Rapid dissemination of research

**78. Electronic Conferences**

- **Electronic conferences** are online discussion platforms used by researchers and scholars.
- Also known as:
    - Electronic forums
    - Listservs
    - Discussion groups
    - Electronic user groups
- Key purposes:
    - Discuss current topics in a discipline
    - Identify experts and active researchers
    - Share calls for papers and announcements
    - Build scholarly collaboration

- Operational characteristics:
    - Subscription-based access
    - Messages distributed via email
    - Not real-time; messages are called **postings**
- Common software used:
    - LISTSERV
    - COMSERVE
    - LISTPROC

**Tools to Locate Electronic Conferences**

| Directory / Tool | Purpose |
|---|---|
| Directory of Scholarly & Professional E-Conferences | Discipline-wise listservs |
| TILE.NET | Internet discussion lists |
| Publicly Accessible Mailing Lists | Open mailing lists |
| Google Groups | Discussion forums |
| Yahoo Groups | Interest-based groups |

**Crunchy LIS Facts**

- First place where **calls for papers** often appear
- Helps scholars **establish professional identity**

**79. Courseware / Tutorials / Guides / Manuals**

- **Online courseware** refers to Web-based educational content designed for **self-paced learning**.
- Characteristics:
    - High interactivity
    - Flexible access
    - Learner-controlled pace
- Nature:
    - Created exclusively for the Web
    - Uses multimedia (audio, video, simulations)
- LIS relevance:
    - Widely used in **distance and continuing education**
    - Supports **computer-assisted instruction (CAI)**
- Scale and examples:
    - Telecampus (Canada) lists **over 12,000** online coursewares
    - Ministry of Information Technology (India) portal hosts **4,000** coursewares, including **375** in the public domain

**Crunchy Exam Tip** *Online courseware = education without classroom boundaries.*

**80. Electronic Journals (E-Journals)**

- **Electronic journals** are journals and serials prepared, distributed, and accessed **electronically**.
- Include:
    - E-journals
    - E-zines
    - Webzines
    - Online newsletters
- Access technologies:
    - World Wide Web (WWW)
    - FTP
    - Telnet
    - Email
    - Listservs
- Publishing trend:
    - Most traditional journals now appear in **both print and electronic formats**

**Advantages for LIS Users**

| Feature | Benefit |
|---|---|
| Instant access | Faster research |
| Searchability | Keyword-based retrieval |
| Hyperlinks | Easy navigation |
| Multimedia | Enhanced understanding |

Crunchy fact: *E-journals are the backbone of modern academic libraries.*

**81. Patents (Electronic Access)**

- **Patents** protect inventions related to **products or processes** for a limited period (usually **15–20 years**).
- Patent information is a **primary electronic source** of scientific and technical knowledge.
- Online availability:
    - Full-text patents are freely accessible via national and international patent offices.
- Major patent information portals:
    - United States Patent and Trademark Office (USPTO)
    - World Intellectual Property Organization (WIPO)

**Key Patent Databases**

| Database | Coverage |
|---|---|
| USPTO | US patents |

| | |
|---|---|
| Canadian Patent Database | Canada |
| Derwent Patents | Global patent data |
| IBM Intellectual Property Network | IBM patents |
| Patent Cooperation Treaty Gazette | International patents |

- Value-added services:
    - Patent Alert Services provide **email updates** on newly granted patents
    - Meta-sites compile patent resources across jurisdictions

**Crunchy LIS Facts**

- Patents often disclose information **not published elsewhere**
- Essential for **technology forecasting** and **innovation studies**

**82. Summary: Types of Primary Electronic Resources**

| Resource Type | Nature | LIS Use |
|---|---|---|
| Electronic Conferences | Scholarly communication | Current awareness |
| Online Courseware | Educational content | E-learning |
| E-Journals | Research publications | Academic research |
| Patents | Technical innovation | R&D, IP studies |

**83. Electronic Preprints and E-prints**

- **Electronic preprints** are research articles shared **online before peer review**.
- They enable **rapid dissemination** of research findings and early scholarly communication.
- Widely used in disciplines such as:
    - Physics
    - Mathematics
    - Computer Science
    - Economics
    - Health Sciences
- A pioneering platform is **arXiv** (Ginsparg Preprint Archive), which:
    - Started in theoretical high-energy physics
    - Later expanded to physics, mathematics, and computer science
    - Receives massive global usage, including from developing regions

**Benefits of Electronic Preprints (Crunchy Facts)**

- Remove **cost barriers** of high-priced journals
- Reduce **time lag** in announcing research results
- Provide **open access** to anyone with Internet connectivity
- Encourage **early feedback** and collaboration

**84. Major Preprint Servers (Discipline-wise)**

| Preprint Server | Subject Coverage |
|---|---|
| arXiv | Physics, Mathematics, CS |
| UK e-Print Archive Mirror | Multidisciplinary |
| Open Archives Initiative | Archiving standards |
| PubMed Central | Medicine & Health |
| American Mathematical Society Preprint Server | Mathematics |
| CERN Preprint Server | High-energy physics |
| Economics Working Paper Archive | Economics |
| Chemical Physics Preprint Database | Chemical physics |
| Clinical Medicine & Health Netprints | Medicine & Health |
| Department of Energy PrePRINT Network | Energy & applied sciences |

**Exam Tip** *Preprint servers = fastest channel of scholarly communication.*

**85. E-prints**

- **E-prints** are **electronic versions of final, peer-reviewed journal articles**.
- Unlike preprints, e-prints represent the **validated and accepted** form of research.
- Key characteristics:
    - Final author or publisher version
    - Archived digitally
    - Accessible via institutional or disciplinary repositories

**86. Open Archives Initiative (OAI)**

- The **Open Archives Initiative (OAI)** is an international movement that:
    - Promotes **standardized archiving protocols**
    - Enhances **sharing and retrieval** of e-prints
    - Supports interoperability among repositories
- OAI introduced standards that allow:
    - Metadata harvesting
    - Cross-repository discovery

**Crunchy LIS Fact** *OAI is the backbone of global interoperability in digital repositories.*

**87. Self-Archiving**

- **Self-archiving** is the practice where authors **deposit their own research papers** in an archive.
- Authors may submit to:
    - Institutional repositories (universities, research institutes)
    - Scholarly society repositories
    - Discipline-based repositories
- Advantages:
    - Increases **visibility and citation**

- Ensures **long-term preservation**
- Supports **open access mandates**

**88. Types of E-print Archives**

| Archive Type | Description | Examples |
|---|---|---|
| Institutional Archives | Managed by universities | University repositories |
| Discipline-based Archives | Subject-specific | arXiv |
| Specialty Archives | Focused domains | ERA (International Health) |

Example of specialty archive:

- **Electronic Research Archive in International Health (ERA)** supported by *The Lancet*

**89. Preprints vs E-prints (Quick Comparison)**

| Aspect | Preprints | E-prints |
|---|---|---|
| Peer review | Not reviewed | Peer-reviewed |
| Version | Early draft | Final version |
| Speed | Very fast dissemination | After validation |
| Reliability | Preliminary | Authoritative |
| LIS Use | Current awareness | Archival & reference |

**Final Crunchy Takeaway** *Preprints accelerate science; e-prints validate science.*

**90. Projects (Ongoing and Completed)**

- **Research projects** are time-bound undertakings awarded to:
  - Individuals
  - Groups of researchers
  - Institutions
- Sponsored by funding agencies with:
  - Clearly defined goals
  - Tangible outputs (reports, tools, services)
- Information on projects is commonly available through:
  - Compilations by sponsoring agencies
  - Institutional project directories
  - Subject-wise directories and databases
- Typical information provided:
  - Project title and scope
  - Investigators
  - Institution and location
  - Status (ongoing/completed)

**Why Project Information Matters (Crunchy Facts)**

- Prevents duplication of research
- Identifies **current research trends**
- Helps researchers find **collaboration opportunities**

**Examples (Online Project Directories)**

- Boston University: Research Projects Directory
- Knowledge Discovery in Databases: Projects
- Science experiments in Physics, Mathematics, Computer Science
- Signal Processing Information Base (SPIB)
- Social Science Research Resources

**91. Science and Research News**

- **Science and research news** provide information on the **most recent developments**.
- Extremely important for:
    - Scientists
    - Technologists
    - Research scholars
    - LIS professionals offering CAS/SDI services
- Characteristics:
    - Short, timely updates
    - Discipline-focused reporting
    - Often published before formal research articles

**Major Online Science & Research News Sources**

| Resource | Focus |
|---|---|
| UniSci | International science news |
| Earth Research | Research & environment |
| Combigenix News | Biotechnology |
| Newscenter | Technology news |
| MagazineCity.net | Science magazines |
| The Scientific World Newslab | Multidisciplinary science |
| Scoop! | Personalised news service |
| Ultimate News Links Page | Aggregated news |

**Crunchy Exam Tip** *Science news = fastest awareness channel before journals.*

**92. Software (Free and Open Source)**

- **Free software** refers to software that can be:
    - Run

    - Copied
    - Distributed
    - Studied
    - Modified
- Governed under **General Public License (GPL)**.
- Widely used in libraries for:
    - Automation
    - Digital libraries
    - Data analysis
    - Research support

**Popular Free/Shareware Software Sites**

| Platform | Type |
|---|---|
| Downloads.com | General software |
| GNU Free Software Directory | Open-source software |
| Freeware Home | Free applications |
| Jambo | Free & shareware |
| ZDNet | Software reviews & downloads |
| Shareware.com | Shareware software |
| Chemistry Software Exchange | Chemistry tools |
| Engineering Software on Internet | Engineering software |

**93. Standards (Electronic Access)**

- **Technical standards** define how products or materials should be:
    - Manufactured
    - Measured
    - Tested
    - Documented
- National and international bodies issue standards, often available online (free or paid).
- Key organizations issuing standards:
    - Bureau of Indian Standards (BIS)
    - International Organization for Standardization (ISO)
    - IEEE
    - American National Standards Institute (ANSI)
    - National Institute of Standards and Technology (NIST)
- LIS-specific standards:
    - **MARC** – Machine-Readable Cataloging

- **AACR II** – Anglo-American Cataloguing Rules

**Important Standards Websites**

| Organization | Website Purpose |
|---|---|
| British Standards Institution | UK standards |
| Bureau of Indian Standards | Indian standards |
| ASTM International | Materials standards |
| ANSI | US standards |
| DIN | German standards |
| IEEE | Engineering standards |
| World Standards Services Network | Global gateway |

**94. Technical Reports (Electronic Access)**

- **Technical reports** are detailed accounts of research projects.
- Prepared by researchers for:
  - Employers
  - Funding agencies
  - Interested organizations
- Characteristics:
  - Often unpublished in journals
  - Highly detailed
  - Rapid dissemination
- Issued by major R&D organizations such as:
  - NASA
  - National Technical Information Service (NTIS)
  - International Nuclear Information System (INIS)
  - RAND Corporation
  - General Electric

**Key Online Technical Report Sources**

| Source | Coverage |
|---|---|
| DOE Scientific & Technical Literature | Energy research |
| NTIS | Multidisciplinary |
| NASA Technical Reports Server | Aerospace |
| Networked Computer Science TR Library | Computer Science |
| CMU Technical Reports | CS research |

**95. Electronic Theses and Dissertations (ETDs)**

- **Doctoral theses and dissertations** are primary research outputs.
- Created using word-processing or desktop-publishing software.

- Easily converted into:
    - PDF
    - PostScript
    - XML
- Hosted online to ensure:
    - Global access
    - Long-term preservation
- Coordinated globally by **Networked Digital Library of Theses and Dissertations (NDLTD)**.
- NDLTD facts:
    - Over **125 member institutions worldwide**
    - Indian members include **IIT Bombay** and **University of Mysore**

**Major ETD Platforms**

| Platform | Coverage |
|---|---|
| NDLTD | Global ETDs |
| Dissertation.com | Academic dissertations |
| UMI / ProQuest | Theses & dissertations |
| UMI Digital Dissertations | Full-text access |
| VT ETDs | Virginia Tech repository |

**Crunchy Exam Fact** *ETDs are the richest source of unpublished original research.*

**Final Takeaway** *Electronic resources—from projects and news to software, standards, reports, and ETDs—form the digital backbone of modern LIS services.*

**96. Abstracting and Indexing Databases (Bibliographic Databases)**

- A **database** is an organized collection of records related to a specific field of study.
- **Bibliographic databases** contain structured information about documents such as:
    - Journal articles
    - Book chapters
    - Conference proceedings
    - Reports
- These databases generally include:
    - Bibliographic details (author, title, source, year)
    - Abstracts (in abstracting databases)
    - Subject descriptors / keywords
- Earlier available through **CD-ROM / DVD-ROM**, most bibliographic databases are now:
    - Web-based

- Subscription-based
- Equipped with advanced search features

**Why Bibliographic Databases Matter (Crunchy Facts)**

- Enable **systematic literature search**
- Avoid duplication of research
- Save researchers' time
- Backbone of **reference and research services** in libraries

**97. Examples of Internet-Based Bibliographic Databases**

| Database | Subject Coverage |
|---|---|
| AGRICOLA | Agriculture & allied sciences |
| ERIC | Education & LIS education |
| PubMed | Medicine & life sciences |
| GPO Online | US government publications |
| Energy Files | Energy research |
| SciBASE | Multidisciplinary science |

**LIS-Specific Bibliographic Databases (Added)**

- **Library & Information Science Abstracts (LISA)**
- **Library, Information Science & Technology Abstracts (LISTA)**
- **Indian Citation Index (ICI)**
- **DELNET Databases**
- **Shodhganga Metadata Records**

*These are core tools for LIS research and UGC-NET preparation.*

**98. Database Hosts and Vendors**

- Bibliographic databases are made accessible through hosts such as:
  - Dialog
  - Engineering Village
  - STN Easy
- Features provided:
  - Advanced Boolean search
  - Field-specific searching
  - Export and citation tools

**99. Citation Databases**

- A **citation** is a reference to a document used in another document.
- **Citation databases** track:

    - Which articles cite which earlier articles
    - Citation relationships between documents
- Purpose:
    - Measure **research impact**
    - Identify influential authors and works
    - Perform **citation analysis**

**Important ISI Citation Databases**

| Citation Index | Coverage |
|---|---|
| Science Citation Index Expanded | Science & Technology |
| Social Sciences Citation Index | Social sciences |
| Arts & Humanities Citation Index | Humanities |
| Clinical Medicine Citation Index | Medical sciences |

Hosted on **Web of Science**

- Special features:
    - View cited references
    - Find citing articles
    - Identify related articles

**LIS-Related Citation Databases (Added)**

- **Web of Science – LIS category**
- **Scopus (Elsevier)**
- **Google Scholar**
- **Indian Citation Index (ICI)**

*Citation databases = tools for research evaluation and ranking.*

**100. Digital Collections (Images, Audio & Video)**

- Internet supports **multimedia digital collections**, including:
    - Images
    - Audio files
    - Videos
    - Animations
- Used for:
    - Education
    - Research
    - Cultural preservation

- Some collections require special plugins or players.

**Examples of Multimedia Digital Collections**

| Collection | Content Type |
|---|---|
| NASA Multimedia Gallery | Images & videos |
| Great Buildings Collection | Architecture images |
| The Nine Planets | Astronomy multimedia |

**LIS-Relevant Digital Collections (Added)**

- **National Digital Library of India (NDLI)**
- **IGNCA Digital Repository**
- **British Library Digital Collections**
- **Europeana**

**101. Image Search Engines**

- Specialized tools used to locate images on the Web.

**Examples**

| Image Search Engine |
|---|
| Google Image Search |
| Yahoo Picture Gallery |
| Picsearch |
| Lycos Multimedia |
| IXQUICK |

*Useful for presentations, teaching materials, and digital exhibits.*

**102. Equipment / Product Catalogs**

- **Web-based catalogs** listing products with full specifications.
- Widely used by:
    - Libraries
    - Institutions
    - Corporates
- Features:
    - Searchable databases
    - Product comparison
    - User reviews

**Examples**

| Catalog | Domain |
|---|---|
| Sony Electronic Products | Electronics |
| DesignInfo | Design products |

| | |
|---|---|
| SourceGuides | Marketplaces |

**LIS Use (Added)**

- Selection of:
  - Library automation software
  - RFID systems
  - Barcode scanners
  - Digitization equipment

**103. Scientific Data Sets**

- Include **numeric, property, and structural databases**.
- Data is critically evaluated by experts.
- Considered **authoritative sources**.

**Examples**

| Database | Field |
|---|---|
| Aladdin Database | Nuclear data |
| GrainGenes | Agriculture |
| LIGAND | Bioinformatics |
| Nuclear Explosions Database | Nuclear science |

**104. Library Catalogs (Including Union Catalogs)**

- Libraries were among the **earliest Internet adopters**.
- Library catalogs are now:
  - Web-enabled (WebPACs)
  - Searchable globally
- Functions:
  - Document discovery
  - Resource sharing
  - Inter-library loan

**Major Library Catalog Gateways**

| Resource |
|---|
| LibWeb |
| LibDex |
| British Library Catalog |
| Library of Congress Catalog |
| WebCATS |

**105. Museums and Archives (Virtual)**

- **Virtual museums** allow users to explore exhibits online.

- Advanced tools allow:
    - Object rotation
    - High-resolution viewing

**106. Virtual Libraries**

- A **virtual library** (library without walls) is a **meta-resource** or subject portal.
- It provides access to distributed digital resources without revealing their physical location.
- Characteristics:
    - Global accessibility
    - Resource aggregation
    - Subject-wise organization

**LIS-Relevant Virtual Libraries (Added)**

- **NDLI**
- **INFLIBNET Portals**
- **National Science Digital Library (NSDL)**
- **Subject Gateways maintained by universities**

**107. Final Snapshot: Electronic Information Resources**

| Category | Purpose |
|---|---|
| Bibliographic Databases | Literature discovery |
| Citation Databases | Research impact |
| Digital Collections | Multimedia access |
| Library Catalogs | Document location |
| Virtual Libraries | Integrated access |

*Electronic information resources transform libraries into intelligent access systems rather than mere book repositories.*

Source for Unit 1:


1. https://ebooks.inflibnet.ac.in/lisp4/chapter/types-of-information-sources-documentary-primary-secondary-and-tertiary/
2. https://mis.alagappauniversity.ac.in/siteAdmin/dde-admin/uploads/1/UG_B.Lib.I.Sc._Library%20Information%20Science_109%2012_INFO%20SOURCES,%20SYSTEMS,%20AND%20SERVICE.pdf


# Unit.2. Reference Service

**1. Introduction**

- **Reference service** as a distinct library function emerged in the **late 19th century**.
- It developed mainly due to the growth of **publicly funded libraries** catering to:
    - Inexperienced readers
    - Researchers and scholars
    - General users with diverse information needs
- **S. R. Ranganathan**, the Father of Librarianship in India, defined reference service as:
    - *Establishing contact between the reader and the book/source through personal service.*
- Ranganathan identified **four categories of readers** and corresponding reference services:

**Reader Categories and Reference Service Type**

| Reader Category | Nature of Service | LIS Example |
|---|---|---|
| Freshman | Initiation | Library orientation for new LIS students |
| General Reader | General help | Helping users locate textbooks |
| Ordinary / Generalist Enquirer | Ready reference | Answering factual questions |
| Specialist Reader | Long-range reference | Literature search for PhD scholars |

Skills required for a reference librarian:

- Knowledge of **reader psychology**
- Mastery of **reference sources**
- Strong **bibliographical control**
- Awareness of **new technologies and trends**

- Modern context:
    - Reference service now includes **e-reference services**
    - Focus on **quality, speed, and accessibility**
    - Librarians act as **information intermediaries** in a vast knowledge universe

**2. History of Reference Service in Libraries**

- The origin of reference service is generally attributed to **Samuel Swett Green**.
- In **1876**, he published the first article advocating **active assistance** to library users.
- He is widely regarded as the **Father of Reference Service**.

**Four Functions of Reference Librarian (Green, 1876)**

- Instruct users on **how to use the library**
- Answer users' **queries**
- Assist in **selection of resources**
- **Promote the library** within the community

**Crunchy fact:** These functions were relevant in the **1870s**, remain relevant **today**, and will continue to be relevant in the future.

**LIS Example**

- Teaching OPAC use
- Assisting with database searching
- Promoting library services through orientation programmes

**3. Reference Service: Definitions**

**3.1 Definition by Samuel Swett Green (1876)**

- Reference service consists of four components:
    - Instruction in library use
    - Assistance in solving queries
    - Help in selecting materials
    - Library promotion

**3.2 Definition by American Library Association (1943)**

- Reference work is:
    - *That phase of library work directly concerned with assisting readers in securing information and using library resources for study and research.*

**3.3 Definition by A. G. Rugh (1975)**

- Reference service is **direct and indirect aid** to users.

**Types of Reference Service According to Rugh**

| Type | Description | LIS Example |
|---|---|---|
| Direct Reference | Personal assistance | Answering a reference query |
| Instructional Reference | Teaching use of resources | Database training |
| Indirect Reference | Collection building & maintenance | Selecting reference books |

**3.4 Definition by S. R. Ranganathan (1961)**

- Reference service is:
    - *Personal service to each reader in helping him to find documents answering his interest at the moment, pointedly, exhaustively, and expeditiously.*

**Key emphasis:**

- Personal service
- Speed
- Accuracy
- Exhaustiveness

**3.5 View of B. M. Robinson (1989)**

- Every question received by a librarian is **mediated**, whether answered or not.
- Reference service includes:
    - Question handling
    - Development of specialized tools (bibliographies, union lists)
    - Collection development
    - Staff training
    - Quality control

**3.6 Modern View by J. James (2002)**

- Identified **new forms of reference service**, including:
    - E-mail reference
    - Web forms
    - Instant messaging
    - Chat reference
    - Video conferencing
    - MOO / MUD based services

**Crunchy fact:** These services form the foundation of **digital and virtual reference services**.

**4. Evolution of Reference Service: At a Glance**

| Period | Nature of Reference Service |
|---|---|
| Pre-1876 | Passive, book-oriented |
| 1876 onwards | Active, user-oriented |
| Mid-20th century | Organized reference departments |
| Late 20th century | Specialized & mediated services |
| 21st century | Digital, virtual & e-reference |

**5. LIS-Specific Examples of Reference Service**

- Answering **UGC-NET LIS** queries
- Guiding researchers in **database selection**
- Conducting **literature searches**
- Providing **citation and plagiarism support**
- Virtual reference through **chat and email**

**Key Takeaway** *Reference service is the intellectual heart of the library, transforming collections into usable knowledge through personalized assistance.*

**4. Objectives of Reference Service**

- Reference service provides librarians an opportunity to **ignite users' curiosity** and guide them through the **vast learning pathways** available in the library.

**Major Objectives**

- **To protect and organize the collection**
    - Systematic arrangement of reference sources for quick access.
- **To present the collection before the readers**
    - Making users aware of available print and electronic reference tools.
- **To ensure availability of trained and professional librarians**
    - Skilled staff capable of handling diverse and complex queries.
- **To encourage coordination between staff and readers**
    - Promoting user–librarian interaction for effective service delivery.
- **To save the time of the reader**
    - Following Ranganathan's Fourth Law: *Save the time of the reader*.
- **To conduct fact-finding research**
    - Providing precise answers to factual and ready-reference queries.
- **To develop the library**
    - Improving collections and services based on user needs.
- **To maximise the use of reference services**
    - Ensuring reference resources are optimally utilized.

**LIS-Related Examples**

- Helping LIS students locate **AACR II / RDA rules**
- Assisting researchers in **citation verification**
- Guiding users to **Shodhganga theses**
- Answering UGC-NET LIS factual queries

**5. Theories of Reference Service**

- **James Wyer** proposed three philosophies of reference service:
    - Conservative
    - Moderate
    - Liberal
- These were later termed by **Samuel Rothstein** as:
    - Minimum
    - Middling

- Maximum

**5.1 Conservative or Minimum Reference Service**

- Provides **limited personal assistance**.
- Librarian only **points the way**, not the answer.
- Emphasis on **instruction rather than interpretation**.
- Traditional and passive in nature.

**LIS Example**

- Showing a user **where the dictionary is located**, without finding the meaning.

**5.2 Moderate or Middling Reference Service**

- Goes beyond instruction to **active help**.
- Librarian assists in **using books, databases, and sources**.
- Conducts **exhaustive searches** to locate answers.

**LIS Example**

- Searching **LISTA or LISA** to help a student find review articles.

**5.3 Liberal or Maximum Reference Service**

- Provides **complete and reliable information**.
- Librarian may:
  - Conduct research on behalf of the user
  - Select relevant material
  - Prepare summaries or analyses
- Commonly practiced in **special libraries**.

**LIS Example**

- Preparing a **literature review summary** for a research scientist.

**Comparative View of Reference Service Theories**

| Aspect | Conservative (Minimum) | Moderate (Middling) | Liberal (Maximum) |
|---|---|---|---|
| Focus | Instruction | Instruction + Answers | Answers |
| Librarian Role | Guide | Assistant | Researcher |
| Depth | Low | Medium | High |
| Typical Library | Public | Academic | Special |

As noted by **Bopp and Smith (2011)**:

- Conservative → instruction over answers
- Liberal → answers over instruction
- Moderate → balanced approach

**6. Functions of Reference Service**

- In **1942**, the **American Library Association (ALA)** identified six core functions of reference service.

**6.1 Supervisory Function**

- Organization and management of reference services.
- Includes:
    - Selection of reference materials
    - Organization of reference section
    - Staff supervision and guidance
    - Study of library clientele

**LIS Example**

- Deciding which **online databases** to subscribe for LIS research.

**6.2 Instructional Function**

- Educating users on:
    - Library layout
    - OPAC usage
    - Databases and e-resources
    - Library rules and procedures
- Orientation programmes and user education are essential.

**LIS Example**

- Conducting **OPAC and database training sessions** for new students.

**6.3 Informatory Function**

- Handling all types of information queries.
- Operates through **Reference / Information Desk**.
- Uses modern tools:
    - Computers
    - Mobile devices
    - Social media

**LIS Example**

- Answering queries via **email, WhatsApp, or library chat service**.

**6.4 Guidance Function**

- Helping users make **maximum use of library resources**.
- Guidance related to:

- Subject information
- Career and profession
- Reading and learning materials

**LIS Example**

- Advising students on **career options in LIS**.

**6.5 Bibliographic Function**

- Preparation of bibliographies to assist users.
- Keeps users informed about **latest literature**.
- Bibliographies are tailored to user needs.

**LIS Example**

- Preparing a **bibliography on Digital Libraries** for research scholars.

**6.6 Appraisal Function**

- Evaluation of:
  - Reference services
  - Reference staff
  - Reference collections
- Ensures effectiveness and efficiency of services.

**Criteria for Evaluation**

- Is the user's query properly analysed?
- Is the correct procedure followed?
- Is the user fully satisfied?
- Are reference sources adequate?

**LIS Example**

- Analysing **reference query statistics** to improve service quality.

**7. Key Takeaway** *Reference service transforms a library from a storehouse of documents into a dynamic centre of knowledge and learning.*

**7. Ranganathan's Classification of Reference Services**

- Reference service is a **personal service** where users receive information through **direct contact with the reference librarian**.
- Queries vary by **type, complexity, and urgency**.
- Based on **time taken and depth of effort**, reference service is broadly classified into:
  - **Ready Reference Service**
  - **Long Range Reference Service**

- Parallel terminology:
    - **Ready Reference** ≈ *Direct Reference Service* (American Library Association)
    - **Long Range Reference** ≈ *Indirect Reference Service*
- As explained by **S. R. Ranganathan**, reference work has distinct facets based on immediacy and scope.

**7.1 Ready Reference Service**

- Defined as reference service **answered in the shortest possible time**—*ideally within a minute*.
- Nature: **fact-finding**, brief, and immediately actionable.
- Typically handled **at the reference desk** while the user waits.
- Arises due to the **vastness and complexity of information** and users' **time constraints**.

**Characteristics of Ready Reference Queries**

- Directly demanded
- Simple and specific
- Short answers
- Answered on the spot
- Usually within **5 minutes or less**

**Common Ready Reference Sources**

- Dictionaries
- Directories and Handbooks
- Census Reports
- Yearbooks / Annuals
- Biographies
- Gazetteers
- Atlases
- Encyclopaedias
- Official publications and websites of organizations
- Authentic web sources and **online databases**

**LIS-Specific Examples (Ready Reference)**

- Year of publication of **AACR II / RDA**
- Full form of **MARC, OPAC, DOI**
- ISSN of a journal
- Library opening hours

- Contact details of **INFLIBNET / DELNET**

**7.1.1 Need for Ready Reference Service**

- Users often **do not know** which reference source to consult.
- Reference sources are **arranged differently** and may be unfamiliar.
- Increasing use of **email, chat, and social media** demands **instant answers**.

**Outcome:** Ready reference bridges the gap between **user urgency** and **resource complexity**.

**7.2 Long Range Reference Service**

- Requires **more than 5 minutes** and may extend to **hours or days**.
- Used extensively in **public and special libraries**.
- Given to **specialist readers** seeking in-depth information.
- Involves **exhaustive searching** across multiple sources and locations.

**Search Process (Typical Flow)**

- Reference books and online reference sources
- Books, reports, monographs
- Journal articles (print and online)
- Other libraries (local, national, international)
- Over time, answers to long-range queries may become **ready reference** due to librarian experience.
- Scope has expanded to include:
    - Bibliographical service
    - Referral service
    - Translation service

**LIS-Specific Examples (Long Range Reference)**

- Preparing a **bibliography on Digital Libraries**
- Literature search on **Research Data Management**
- Tracing **conference papers** across databases
- Locating **rare LIS theses** via union catalogues

**7.2.1 Need for Long Range Reference Service**

**(a) Saving Time of Readers and Experts**

- Researchers' time is precious.
- Librarians apply **search strategies and tools** to reduce user effort.

**(b) Knowledge Explosion**

- Massive growth of literature makes self-search impractical.

- Librarians track **what exists and where**.

**(c) Complexity of Information Sources**

- Different arrangements, formats, and languages.
- Librarians interpret and navigate complexities.

**(d) Resources of Other Libraries**

- No library is self-sufficient.
- Reference librarians facilitate **resource sharing** and **ILL**.

**8. Levels of Reference Service**

**8.1 Ready Reference**

- Less than **5 minutes**
- Uses designated reference collection
- Done while user waits
- Result is **always an answer**
- Simple questions; factual look-ups

**LIS Example:** Meaning of *authority control*.

**8.2 Long Range Reference Service**

- **5–30 minutes** or more; may extend beyond a day
- Result is an **answer or a referral**
- Requires **advanced resources**
- Information look-up without deep analysis

**LIS Example:** List of core LIS journals indexed in Scopus.

**8.3 Research (Extended Reference)**

- Labour-intensive; **days to a week**
- Library staff conducts **secondary research**
- Result is an **explanation or synthesis**, not a single answer
- Involves **analysis** and multiple sources

**LIS Example:** Preparing a **review note on Open Access policies**.

**8.4 Referral**

**(a) Question Referral**

- One librarian refers a question to another librarian/library
- Referring librarian **retains control**

**LIS Example:** Referring a patent query to a technical library.

**(b) Client Referral**

- User is referred to another expert or source
- Referring librarian is **out of the loop** after referral

**LIS Example:** Directing a user to **INFLIBNET helpdesk**.

**Comparative Snapshot**

| Aspect | Ready Reference | Long Range Reference | Research |
|---|---|---|---|
| Time | <5 minutes | 5 minutes–days | Days–week |
| Nature | Factual | Detailed search | Analytical |
| Result | Direct answer | Answer/Referral | Explanation |
| User Level | General | Specialist | Researcher |

**Key Takeaway Ready Reference answers *now*, Long Range Reference answers *thoroughly*, and Research answers *analytically*.** Together, they form a **continuum of professional reference service**.

**9. Five Laws of Library Science and Reference Services**

The **Five Laws of Library Science**, propounded by **S. R. Ranganathan**, form the **philosophical foundation of reference service**.
Reference service operationalizes these laws by:

- Personal interaction with users
- Understanding user queries
- Effective use of reference sources
- Saving users' time
- Adapting services with changing needs and technology

Each law is directly reflected in the **theory and practice of reference service**.

**9.1 The First Law – *Books are for Use***

- The core idea is **maximum utilization of library resources**.
- Reference service ensures books and other information sources are **actually used**, not merely stored.
- The reference librarian motivates users and removes psychological, intellectual, and physical barriers.

**Role of Reference Librarian under First Law**

- Acts as **friend, philosopher, and guide**
- Establishes personal rapport with readers
- Encourages use of both **print and digital resources**
- Promotes library collections actively

**LIS Examples**

- Guiding students to use **reference books instead of only textbooks**

- Demonstrating **online databases (e.g., OPAC, e-journals)**
- Helping users access **institutional repositories**

**9.2 The Second Law – *Every Reader His/Her Book***

- Each reader has **unique information needs**.
- Reference service helps match **the right document to the right reader**.
- Users are also expected to understand basic library facilities.

**LIS Examples**

- A research scholar guided to **Scopus/Web of Science**
- A UG student directed to **introductory encyclopaedias**
- A librarian trainee assisted with **cataloguing manuals**

**9.3 The Third Law – *Every Book Its Reader***

- Books do not reach readers automatically; **reference service acts as a bridge**.
- Librarians interpret collections and promote resources to potential users.

**Activities Supporting the Third Law**

- Book exhibitions and new arrivals display
- Bibliographies and reading lists
- Indexing, abstracting, and translation services
- Website alerts and social media promotion

**LIS Examples**

- Displaying **new LIS books and journals**
- Creating **subject bibliographies** for departments
- Promoting **e-resources through library website**

**9.4 The Fourth Law – *Save the Time of the Reader***

- Time is especially valuable for **researchers, scientists, and professionals**.
- Efficient reference service ensures **quick, accurate, and reliable answers**.

**LIS Examples**

- Ready reference answers within minutes
- Use of **online databases and federated search tools**
- Providing direct links instead of lengthy explanations

**9.5 The Fifth Law – *Library is a Growing Organism***

- Libraries evolve in terms of **collections, users, technology, and services**.
- Reference services must adapt to new formats, tools, and user behaviour.

**Growth Reflected Through Reference Services**

- Shift from print to **e-reference and digital reference**
- Use of **chat, email, social media, and virtual desks**
- Expansion of user base through better services

**Relationship between Five Laws and Reference Services (Quick View)**

| Five Laws | Reflection in Reference Service |
|---|---|
| Books are for use | Active promotion and use of resources |
| Every reader his book | Personalized information assistance |
| Every book its reader | Resource discovery and user matching |
| Save the time of reader | Fast, accurate reference responses |
| Library is a growing organism | Adoption of digital & e-reference |

**10. Evaluation of Reference Service**

Evaluation ensures **quality, effectiveness, and user satisfaction**.

**Key Criteria for Evaluation**

- Access
- Equity
- Response time
- Impact
- Convenience and accessibility
- Value and usefulness
- Efficiency and effectiveness
- Accuracy of answers
- User satisfaction
- Repeat users
- Cost per transaction
- Completion time
- Role of technology
- Empathy, approachability, and reliability

**11. E-Reference Services and Digital Reference Services**

Modern reference services have shifted from **physical desks to virtual environments**.

**Definition**

Digital reference service allows users to submit queries and receive answers **electronically** via:

- Email

- Chat
- Web forms
- Social media

**Modes of Digital Reference**

- **Asynchronous**: Email, web forms, social media (reply within hours/days)
- **Synchronous**: Chat, instant messaging, video calls (real-time)

**Models of Modern Reference Services**

**11.1 Roving Reference**

- Librarian moves within library spaces
- Provides help at **point of need**

**LIS Example:** Assisting users near OPAC terminals.

**11.2 Outreach Reference**

- Librarian engages with users **outside library premises**
- Community programs, orientations, workshops

**LIS Example:** Information literacy sessions in colleges.

**11.3 Virtual Reference**

- Reference services through **phone, chat, SMS, and web platforms**
- Supports distance learners and remote users

**LIS Example:** WhatsApp or chat-based library helpdesk.

**12. Human Resource Policy for E-Reference**

Key considerations for staffing e-reference services:

- Avoid purely contractual staffing
- Proper scheduling for **24×7 services**
- Clear priority for e-reference duties
- Adequate staffing levels
- Continuous training and professional development

**Key Takeaway**

**Reference service is the practical application of the Five Laws of Library Science.**
Without effective reference service, the Five Laws remain theoretical.

Sources for Unit:2

- https://ebooks.inflibnet.ac.in/lisp4/chapter/reference-service-concept-need-types-theories-trends/

# Unit 3. Information Services and Products

## 1. Introduction

- The advent of the **Internet** and **personal computers** has led to the **Information Age**.
- This age is marked by rapid creation, storage, access, and transmission of information using digital technologies.
- Libraries and information centres acquire, process, organize, and disseminate information.
- Processed and organized information becomes an **information product** that satisfies user needs.
- Information is a vital resource for **education, research, industry, and socio-economic development**.

## 2. Information Products: Concept and Definition

- In post-industrial society, information is central to **teaching, learning, research, and development**.
- Information and knowledge are key assets for business and industrial organisations.
- An **information product** is recorded and systematically organised information meant for use by others.
- Information products may exist in **print, electronic, audio, video, or multimedia formats**.
- These products are also called **digital goods**, **knowledge-based goods**, or **information artefacts**.

### Examples of Information Products

- Books and e-books
- Bibliographies and review articles
- Manuals and workbooks
- Audio and video lectures
- Databases and digital repositories
- Subscription-based websites

### Key Aspects in Information Product Development

- **Demand** – Identify user needs before product creation.
- **Quality** – Ensure accuracy, reliability, and relevance.
- **Presentation** – Proper structure and user-friendly design.
- **Follow-ups** – Provision for updates and affordability.

### Activities Involved in Information Product Development

- Selection and acquisition of information sources
- Evaluation and analysis
- Synthesis and restructuring
- Packaging and repackaging

- Dissemination and delivery

### 2.1 Types of Information Products

Saracevic classified information products into the following types:

| Type | Brief Description | LIS Examples |
|---|---|---|
| Reviews | Critical summaries of literature | Review articles |
| Reports | Analytical or evaluative documents | Technical reports, newsletters |
| Data | Structured information | Statistical tables |
| Databases | Organized digital information | OPAC, bibliographic databases |
| Technical Writings | Simplified explanations | User guides, manuals |
| Handbooks | Compiled essential data | LIS handbooks |
| Critical Studies | Comparative or impact studies | Library evaluation studies |
| Requests | On-demand information services | Briefings, bibliographies |

### 2.2 Content of Information Products

- Most information products require **restructuring of synthesized information**.
- Restructuring involves deciding the **mode, language, and form** of presentation suitable for users.
- Content design ensures that information products are **useful, understandable, and relevant**.

#### 2.2.1 Content Extent

- Refers to the **degree of detail** in which a subject is covered.
- Includes **depth** (how detailed) and **breadth** (how wide) of coverage.
- Depends on the **user group and purpose** of the information product.

#### 2.2.2 Technical Sophistication

- Indicates the **technical level** of the content.
- Must match the **understanding ability of target users**.
- May range from **layman-friendly** to **highly technical** content.

#### 2.2.3 Temporal Aspect

- Refers to the **time dimension** of information.
- May include:
    - Immediate
    - Current
    - Retrospective information
- Also covers the **frequency of publication** of the information product.

#### 2.2.4 Information Quality and Accuracy

- Indicates the **validity, reliability, and correctness** of information.
- High-quality information products ensure:
    - Accuracy

- Authenticity
- Trustworthiness

**2.2.5 Degree of Invariability or Value Addition**

- Describes how far information is **reproduced or modified** from original sources.
- Considers **value addition** such as:
  - Analysis
  - Comparison
  - Judgement
  - Interpretation

**2.2.6 Editorial Qualities**

- Concerned with the **presentation quality** of the product.
- Includes:
  - Style of writing
  - Grammar and syntax
  - Clarity and coherence
  - Crisp and logical flow

**3. Newsletters**

- Newsletters have existed for **over 500 years**.
- Earlier newsletters focused on **business and public news**.
- Their importance grew rapidly during the **20th century**.

**Definition of Newsletter**

- Seetharama defines a newsletter as:
  - A **serial publication**
  - Usually, one or a few pages
  - Contains **nascent or current information**
  - Published **periodically**
  - Intended for a **specific group of users**

**Characteristics of Newsletters**

- Issued by:
  - Organizations
  - Institutions
  - Government departments

    - Professional societies
    - Trade and industrial associations
- Provide **speedy and focused information**.
- Often used to:
    - Inform members
    - Promote products or services
    - Substitute journals (limited pages)

**Nature of Newsletters**

- Usually **informal in style**.
- Simple format and **crisp presentation**.
- Targeted to a **defined audience**.
- May be issued:
    - Regularly
    - Irregularly (depending on need)

**3.1 Types of Newsletters**

Based on the **publishing organizations**, newsletters are classified as:

- Research and Development organizations
- Associations and professional bodies
- Government organizations
- Public Sector Undertakings (PSUs)
- Private institutions
- Academic institutions
- International organizations
- Autonomous institutions

**3.2 Objectives and Functions of Newsletters**

Newsletters are prepared to achieve the following objectives:

- To publicize and promote products and services of the parent organization
- To announce current and forthcoming events such as conferences, seminars, and workshops
- To communicate social and cultural information such as appointments, promotions, transfers, retirements, and obituaries
- To publish timely and relevant information of current interest

**3.3 Contents of Newsletters**

The content of newsletters varies according to the nature and purpose of the organization.

### 3.3.1 R & D Organizations

Their newsletters generally include:

- Information on research programmes
- Grants and fellowships
- Awards and recognitions
- Announcements of seminars, workshops, and conferences

### 3.3.2 Associations

Newsletters of associations include:

- President's or Secretary's report
- Official announcements
- Employment and career news
- Academic and professional achievements
- Information relevant to members

### 3.3.3 Industrial Organizations

Industrial newsletters are of two types:

- **Internal circulation**
    - Employee promotions
    - Welfare measures
    - Social and cultural activities
- **External circulation**
    - Information on new products and services
    - Technological developments
    - Achievements of the organization

## 3.4 Frequency of Publication

- Weekly
- Fortnightly
- Monthly
- Bi-monthly
- Quarterly
- Half-yearly
- Yearly

- Some newsletters have **no fixed periodicity**

Frequency depends on:

- Purpose
- Nature of information
- Organizational needs

**3.5 Electronic Newsletters (E-Newsletters)**

- Emerged due to advances in **computer and telecommunication technologies**
- In use since the **1990s**
- Distributed mainly through **e-mail** to subscribed users
- Fast, economical, and widely accepted
- Popular in business and industry due to **no printing or mailing cost**

**3.5.1 Advantages of E-Newsletters**

- Delivered directly to the user's workstation
- Provide timely and near real-time information
- Keep users regularly updated
- Can be easily forwarded to others

**Examples of E-Newsletters**

- **CSIR News** – Fortnightly newsletter by NISCAIR, CSIR, New Delhi
- **Financial Times Business Reports** – Covers business, finance, technology, and industry news

**4. House Journals**

- House journals have a long history and expanded scope in modern times
- A house journal is an **internal publication** of an organization
- Aimed at informing and entertaining employees
- Strengthens internal communication and organizational identity

House journals are serial publications issued by:

- Industrial organizations
- Commercial enterprises
- Corporations
- Public sector undertakings

They are circulated among:

- Employees
- Customers

- Shareholders
- Dealers and retailers

**4.1 Types of House Journals**

**4.1.1 Internal House Journals**

- Intended for employees and members
- Circulated internally
- Focus on welfare measures and organizational activities

**4.1.2 External House Journals**

- Issued for customers and potential users
- May appear as magazines or technical journals
- Used for promotion and public relations

**4.1.3 Combination Type**

- Combines features of both internal and external house journals
- Addresses employees as well as customers

**4.2 Objectives and Functions of House Journals**

- To promote the image of the organization and management
- To improve industrial and business relations
- To keep employees and customers informed
- To provide objective and reliable organizational news

**4.3 Contents of House Journals**

Common contents include:

- Message from the Head of the organization
- Editorial note
- Cultural and social activities
- Personnel information such as promotions and retirements
- Articles, features, and creative writings by employees

**4.4 Characteristics of House Journals**

- Produced to enhance organizational image
- Distributed free of cost
- Printed on good quality paper
- Attractive layout and design
- Generally do not carry advertisements

**Examples of House Journals**

- **Vimanika** – Monthly house journal of Air India
- **DRDO Newsletter** – Monthly bulletin published by DESIDOC, DRDO

**5. Trade Literature (Bulletins)**

- **Trade literature** is a generic term that includes trade bulletins, catalogues, brochures, etc.
- It is defined as **catalogues and promotional materials distributed by business firms, usually free of charge**.
- Trade literature is an important **primary source of information**, published periodically by organizations or societies.
- These publications are issued by **manufacturing, wholesaling, and retailing firms**.
- They promote sales by:
    - Describing product features
    - Giving instructions for use
    - Providing technical and commercial details
- Trade literature is prepared for almost **every type of product or service**, such as:
    - Books
    - Chemicals and drugs
    - Household goods
    - Heavy machinery and scientific equipment
- The earliest form of trade catalogues were **book lists issued by booksellers in the 16th century**.
- With the expansion of trade and commerce, trade catalogues became common during the **18th century**.
- Originally, these catalogues were produced **"to the trade"** for salesmen and retailers.

**5.1 Features of Trade Bulletins**

- Trade literature consists of **printed and illustrated documents** offering items for sale.
- It appears in **various formats**, such as:
    - Pamphlets and leaflets
    - Booklets
    - Large catalogues and folios
- Common features include:
    - Provides **exclusive product information** not available elsewhere
    - Varies in size from **single page to several hundred pages**
    - Richly supported by **illustrations, diagrams, charts, and photographs**

    - Becomes **outdated quickly** due to frequent product changes
    - Usually **available free of cost**

**5.2 Functions of Trade Literature (Bulletins)**

Trade and product bulletins serve the following functions:

- Promote the **sale of products and services**
- Act as a **valuable information source** for scientists, engineers, doctors, and technicians
- Provide details such as:
    - Product description
    - Applications
    - Installation instructions
    - Operating characteristics
    - Maintenance procedures
- Help users **compare similar products** from different manufacturers
- Serve as a guide to **manufacturers, suppliers, and dealers**

**5.3 Sources of Trade Literature**

**5.3.1 Advertisements and Announcements in Technical Journals**

- Technical journals and trade magazines carry advertisements of:
    - New products
    - Equipment
    - Industrial processes
- These are useful for **potential buyers and professionals**.

**5.3.2 Special Issues and Supplements of Journals**

- Some journals publish **special issues or supplements**.
- These often contain **directory-type information** useful for buyers.

**5.3.3 Manufacturers' Catalogues**

- Issued directly by manufacturers.
- Contain **detailed technical and commercial information**.
- Distributed through dealers or sales networks.

**5.3.4 Trade Fairs and Exhibitions**

- Manufacturers display products at:
    - Trade fairs
    - Exhibitions

    - Conferences and conventions
- Catalogues and brochures are distributed to **prospective buyers**.

**5.3.5 Directories of Products**

- Published by **independent publishers**.
- Provide information about:
    - Companies
    - Products and services
- Arranged systematically under **product and service categories**.

**5.3.6 Websites and Trade Portals**

- Manufacturers provide **online access** to catalogues and bulletins.
- B2B trade portals offer product information with images and specifications.
- Examples include:
    - TradePortalofIndia
    - IndiaMART
- Trade literature is a significant **information product** created by manufacturers and industries.
- Since users often face difficulty in understanding scattered information, **consolidated and repackaged information** becomes essential.
- Trade literature helps present information in a **readable, usable, and understandable form**.

**6. Handbooks**

- A **handbook** is a ready reference book containing **facts, figures, or instructions** on a particular subject.
- It is designed for **quick consultation** rather than continuous reading.
- The term *handbook* comes from the German word **"handbach"**, meaning a small book containing useful facts.
- Handbooks are called so because they are **convenient to handle** and consult at the point of need.
- They emphasize **established and tested knowledge** rather than current research trends.

**Definitions of Handbook**

| Author | Definition (Essence) |
|---|---|
| Louis Shores | A reference book of miscellaneous facts and figures assembled for ready use |
| William Katz | A collection of miscellaneous facts centred on one theme or subject area |

- Handbooks may deal with **any topic or technique**.
- Many professional and institutional bodies publish handbooks for **specific user groups** such as technicians, office staff, and industrial workers.

**6.1 Purpose of Handbooks**

- Serve as a **ready reference source** in a given field.

- Provide **facts to know** and **instructions to do**.
- Useful for quick consultation in practical and professional work.
- In science and technology, **older handbooks may lose relevance** due to rapid change.

### 6.2 Scope and Coverage of Handbooks

Most handbooks have **limited but focused scope**.

| Aspect | Coverage |
|---|---|
| Nature of content | Facts, figures, themes |
| Currency | Less emphasis on new developments |
| User level | Assumes basic subject knowledge |
| Support | Provides sources of data |
| Utility | Guides to occupations, hobbies, skills |

### 6.3 Types of Handbooks

Handbooks are published in large numbers and may be classified as follows:

#### 6.3.1 General Handbooks

- Designed for **general public use**.
- Arranged **subject-wise** with detailed indexes.

**Examples**

- *Guinness World Records* – Annual compilation of world records
- *Awards, Honours and Prizes* – Information on national and international awards

#### 6.3.2 Statistical Handbooks

- Mostly published by **government agencies**.
- Present information in **statistical and tabular form**.
- Widely used by **social scientists, researchers, and academicians**.

**Examples**

| Title | Coverage |
|---|---|
| Statistical Yearbook of the United Nations | Education, S&T, culture, book production |
| International Historical Statistics | Agriculture, population, trade, labour |

#### 6.3.3 Historical Handbooks

- Useful for queries related to **dates, events, discoveries, and timelines**.
- Cover achievements in **history, science, literature, art, and culture**.

**Examples**

- *The People's Chronology* – Year-wise record of human events
- *The Time Tables of History* – Horizontal linkage of people and events

#### 6.3.4 Literary Handbooks

- Used for **ready reference in literature**.
- Provide information on authors, works, characters, and movements.

**Examples**

- *The Oxford Companion to American Literature*
- *The Cambridge Guide to English Literature*

### 6.3.5 Subject Handbooks

- Prepared for **specific academic or professional subjects**.
- Widely used by **researchers and teachers**.

**Examples**

- *Third World Economic Handbook*
- *Handbook of Special Librarianship and Information Work*

### 6.3.6 Practical Handbooks

- Provide **step-by-step instructions** for performing tasks.
- Also known as **instruction manuals**.

| Category | Examples |
|---|---|
| Health | Family health, first aid |
| Home | Home maintenance |
| Social | Etiquette and manners |
| Lifestyle | Cooking and recipes |
| Creative | Handicrafts and hobbies |
| Learning | Self-taught manuals |
| Technical | Equipment and appliance guides |

## 7. Manuals

- A **manual** is a brief reference book dealing with a **specific process, operation, mechanism, or job instruction**.
- It is a **step-by-step instructional guide** for beginners as well as practitioners.
- Manuals usually **accompany technical devices** and explain installation, operation, and maintenance.
- They explain **how a task is performed** or **how a process works**.
- Sometimes difficult to distinguish from handbooks due to overlapping features.

### 7.1 Scope of Manuals

- Manuals have a **limited and narrow scope**.
- Emphasis is on **depth of information** in a specific area.
- Particularly valuable for **procedural and operational guidance**.

### 7.2 Uses of Manuals

| Use Area | Description |
|---|---|
| Equipment use | Instructions for operating machines, software, appliances |
| Training | Guides representatives to train employees |
| Management support | Helps staff follow procedures correctly |
| Coordination | Guides inter-departmental or inter-organizational operations |

### 7.3 Types of Manuals

#### 7.3.1 Technical Manuals

- Describe **equipment, software, processes, or devices**.
- Include instructions for **installation, operation, maintenance, and repair**.

#### 7.3.2 Procedural Manuals

- Deal with **established procedures and work practices**.
- Help managers and staff perform tasks **methodically and consistently**.

#### 7.3.3 Laboratory Manuals

- Describe **experimental procedures** and testing techniques.
- Include information on **equipment, software installation, and safety**.

**Examples**

- *Haynes Owner's Workshop Manuals*
- *Manual for Writers of Term Papers, Theses and Dissertations* – Kate L. Turabian

## 8. Reviews

- Modern society faces **information overload** due to large volumes of primary literature.
- Technical language and dispersed publications make access difficult.
- **Reviews** solve these problems by **consolidating, evaluating, and synthesizing information**.
- They present information in a **clear, understandable, and usable form**.

### 8.1 Definition of Reviews

| Author | Definition (Essence) |
|---|---|
| Saracevic & Wood | Critical synthesis of state of knowledge in a subject |
| Guha | Narrative account of progress of a field by an expert |

Reviews involve **selection, analysis, evaluation, restructuring, and repackaging** of information.

### 8.2 Characteristics of Reviews

| Characteristic | Description |
|---|---|
| Integration | Places reviewed works within a broader knowledge context |
| Evaluation | Identifies significant literature and eliminates less useful items |
| Compaction | Replaces many primary documents with a concise synthesis |

### 8.3 Types of Reviews

| Type | Focus |
|---|---|
| Bibliographic Reviews | Selection and evaluation of literature over a period |
| Instructional Reviews | Problem-oriented, explanatory, didactic approach |
| Combination | Mix of bibliographic and instructional approaches |

### 8.4 Functions of Reviews

#### 8.4.1 Historical Functions

- Evaluate and select significant literature
- Collate information from multiple sources
- Compact existing knowledge
- Replace many scattered documents with one
- Identify emerging disciplines

#### 8.4.2 Contemporary Functions

- Provide **current awareness**
- Highlight significant contributions
- Support literature searches
- Help students gain subject overview
- Suggest directions for future research

**Examples**

- *Annual Review of Information Science and Technology*
- *Advances in Solid State Physics*

### 9. State-of-the-Art Reports

- A specialized form of review emphasizing **recency and up-to-dateness**.
- Focus on the **highest level of development** at a given time.
- Mainly used by **scientists, technologists, and decision makers**.

### 9.1 Definition

- A **state-of-the-art report** concentrates on the **most recent information and literature** in a subject area.

### 9.2 Characteristics of State-of-the-Art Reports

| Feature | Description |
|---|---|
| Completeness | Extent of literature coverage |
| Perspective | Orientation toward subject and user group |
| Analysis | Depth of examination |
| Synthesis | Degree of consolidation |
| Value addition | Tailoring to specialist needs |
| Utility | Usefulness for multiple purposes |

### 9.3 Types of State-of-the-Art Reports

#### 9.3.1 Technology Reports

- Summarize and evaluate **technological advances**.
- Focus may be technical, managerial, or strategic.

### 9.3.2 Market Reports

- Describe **industry or market status**, trends, profitability, and growth.
- Used for **planning and decision-making**.

### 9.3.3 Statistical Reports

- Present **statistical correlations and trend analysis**.
- Often used for **briefing policy makers and managers**.

### 9.4 Functions of State-of-the-Art Reports

- Peer evaluation of literature
- Provide a continuing conceptual framework
- Replace multiple primary documents
- Identify emerging specialists
- Direct future research and development

**Examples**

- *State-of-the-Art Report on Technology for Efficient Management of Geo-spatial 3D Data* (EU Project)
- *Information Technologies: State-of-the-Art and Imperatives for India* – TIFAC

## 10. Trend Reports

- **Trend reports** identify **patterns and directions of research** over a defined period.
- They present **indicators of change** against planned objectives.
- Prepared mainly by **information specialists** with support from **subject experts** and **technical writers**.
- Useful for understanding **how a subject has evolved** and where it is heading.

### 10.1 Definition

- **Gopinath**:
    - A trend report is an exposition showing the **general direction of research** in a subject based on review of current literature.

### 10.2 Purpose

- To **capture major research trends** in a subject area.
- Based on **systematic analysis of recent literature** within a specific time span.

### 10.3 Need for Trend Reports

| User Group | Usefulness |
|---|---|
| Researchers | Identify emerging research areas |
| Planners & Decision Makers | Support funding and policy decisions |
| Students | Select research topics and directions |

### 10.4 Preparation of Trend Reports

- **Complex and time-consuming** intellectual task.
- Earlier prepared only by **subject specialists** using local collections.
- Now facilitated by:
    - Availability of **electronic resources**
    - **Online databases**
    - Advanced **search and analysis tools**

### 10.5 Skills Required for LIS Professionals

| Required Skill | Explanation |
|---|---|
| Subject familiarity | Understanding components of the subject |
| User interaction | Rapport with specialist users |
| Source knowledge | Awareness of key information sources |
| Technical writing | Ability to compile and present trends clearly |

**Examples (General + LIS-relevant)**

- IFLA Trend Report
- World Bank – *Trends in Developing Economies*
- Trends in Digital Libraries and Scholarly Communication
- Research Trends in Knowledge Organization
- Emerging Trends in Library Automation and AI

## 11. Technical Digests

- **Technical digests** are condensed information products for **managerial and technical personnel**.
- Designed to overcome **information overload** in industry, science, and technology.
- Serve as a **bridge between research and practice**.

### 11.1 Definition

| Source | Meaning |
|---|---|
| Webster | Condensed summary containing the core of literature |
| Guha | Rewritten fuller representation serving as substitute |
| LIS View | Subject-focused digest mainly in science & technology |

### 11.2 Need for Technical Digests

- Different staff levels have **different information needs**.
- Help:
    - Save time
    - Improve decision making
    - Solve technical problems efficiently

### 11.3 Functions of Technical Digests

- Keep personnel updated on **latest developments**
- Disseminate **technical know-how**
- Assist in **problem solving**
- Link **research outputs with production needs**

### 11.4 Categories of Technical Digests

#### 11.4.1 Top Management

- Corporate planning
- Finance and production
- R&D
- Personnel and public relations

#### 11.4.2 Middle-Level Management

- Capacity utilization
- Process improvement
- Decision support

#### 11.4.3 Operator-Level Professionals

- Day-to-day technical solutions
- Process modernization
- Mechanization and efficiency

**Examples**

- *John Hopkins Applied Physics Laboratory – Technical Digest*
- *Management Digest* – Small Enterprises NDC
- *TERI Information Digest on Energy and Environment*

## 12. Electronic Information Products

- Information products available in **electronic format**.
- Include **e-books, e-journals, databases, CD-ROMs, web resources**.
- First appeared as **CD-ROM databases in the 1980s**.
- Web enabled **fast linking, multimedia access, and remote availability**.

### 12.1 CD-ROM Databases

- High storage, durability, portability
- Widely used for **indexes and abstracts**
- Networked access enables **remote usage**

**Examples**

- UMI abstract databases
- Early Engineering and Medical indexes

**12.2 Library Databases**

- Searchable **OPACs and subscribed databases**
- Provide **authenticated and reliable content**
- Superior to general websites due to **expert sourcing**

**12.3 Online Full-Text Databases**

- Subscription-based access to **e-books and e-journals**
- Common in **academic and research libraries**

**12.3.1 Electronic Books (e-Books)**

| Feature | Description |
|---|---|
| Format | PDF, HTML, Text, RTF |
| Access | Online, CD-ROM |
| Providers | Springer, Elsevier, Wiley, Oxford |
| Advantage | Searchable, portable |

**12.3.2 Electronic Journals (e-Journals)**

- Provide **full text, abstracts, or citations**
- Distributed globally via electronic networks
- May exist in **online-only or hybrid formats**

**12.4 Bibliographic Databases**

- Organized digital collections of **references and abstracts**
- Support **literature identification and research discovery**

| Database | Coverage |
|---|---|
| Compendex | Engineering literature |
| Index Medicus | Medical sciences |
| INSPEC | Physics, engineering, computing |
| MathSciNet | Mathematical sciences |
| SciFinder | Chemistry & CAS data |
| Scopus | Multidisciplinary abstracts & citations |
| Web of Science | Citation indexing & impact tracking |

**12.5 Other Electronic Information Products**

**12.5.1 Online Newspapers**

- Provide **current national and international news**
- Multimedia formats: text, audio, video, graphics

### 12.5.2 Reference Sources Online

- Dictionaries, encyclopaedias, almanacs, yearbooks, manuals
- Fast, multi-source searching
- Mostly **freely accessible**

## 14. Current Awareness Services (CAS)

- **Current Awareness Services (CAS)** are also called **Alerting Services**.
- CAS help users **remain up-to-date with current research, publications, and developments** in their subject areas.
- CAS use **modern technologies** to organize, filter, and deliver newly published information.
- These services are generally **in-house services** provided by libraries and information centres.

**Major benefits**

- Saves users' time
- Supplies latest information promptly
- Encourages new ideas and research productivity

### 14.1 Definition of CAS

| Authority | Definition (Essence) |
|---|---|
| S. R. Ranganathan | Documentation periodical listing newly published documents to keep users informed of nascent thought |
| Guha | A system of informing users as soon as possible after publication |
| Lucille J. Strauss | Systematic reviewing, selecting and notifying users about relevant new information |
| Alasdair Kemp | Reviewing new documents and notifying relevant users promptly |

**Core idea**

- Review → Select → Record → Notify → Inform users quickly

### 14.2 Factors Influencing CAS

- **Current approach** – Awareness of latest literature and developments
- **Continuous need** – Regular requirement of current information
- **Direct demand** – Urgent or anticipated future need of references

### 14.3 Steps in CAS

- Scanning documents immediately on receipt
- Selecting relevant documents
- Recording selected items
- Notifying users or user groups

## 15. Need for Current Awareness Services

### 15.1 Growth of Literature

- Rapid growth of scientific and technical publications
- Difficulty in scanning and tracking all new information

**15.2 Interdisciplinary Nature of Research**

- Information scattered across multiple disciplines and journals

**15.3 Variety of Documents**

- Information appears in journals, reports, proceedings, seminars, etc.

**15.4 User Support**

- Users cannot scan literature widely and regularly
- CAS bridges the time gap between publication and secondary tools

**16. Characteristics of CAS**

**16.1 Not Query-Based**

- No specific search question involved

**16.2 Continuous Requirement**

- Needed throughout all stages of research

**16.3 Retrieval Not Mandatory**

- Awareness may be sufficient without consulting full documents

**16.4 Diverse Requirements**

| Aspect | Description |
|---|---|
| Nature | Announcement service |
| Target | Usually group of users |
| Format | Print or electronic |
| Timing | Before secondary sources |
| Feedback | Not mandatory |
| Efficiency | Speed, currency, ease of use |

**17. Categories and Types of CAS**

**17.1 Categories of CAS**

**17.1.1 CAS for All Users**

- Accession lists
- Library bulletins
- Tables of contents
- Newspaper clippings
- Routing of journals

**17.1.2 CAS for Homogeneous Groups**

- Subject-specific alerts
- Email, routing, personal communication

### 17.2 Types of CAS

- Title announcement services
- Research-in-progress notifications
- Conference alerts
- **Selective Dissemination of Information (SDI)**
- Newspaper clipping service
- Current awareness bulletins

## 18. Selective Dissemination of Information (SDI)

- A **personalized form of CAS**
- Targets **individual users or homogeneous groups**
- Computer-assisted and profile-based service

### 18.1 Objectives of SDI

- Provide subject-specific current information
- Match literature with user interest
- Save users' time
- Improve research effectiveness

### 18.2 Components of SDI

| Component | Description |
|---|---|
| User Profile | Subject interests expressed using keywords |
| Document Profile | Bibliographic database |
| Matching | User profile matched with documents |
| Notification | Alerts sent to users |
| Feedback | Users evaluate relevance |
| Modification | Profile refined based on feedback |

### 18.3 Benefits of SDI

- Accurate matching of information needs
- Encourages use of current literature
- Improves research quality
- Quick access to subject-specific information

## 19. Methods and Techniques of Providing CAS

### 19.1 Current Awareness Bulletin

- Lists new books, journals, articles
- May include announcements and news

### 19.2 Routing of Journals

- Journals circulated sequentially among users

**19.3 Display**

- Display of new books, journals, covers

**19.4 Research-in-Progress Bulletin**

- Alerts users about ongoing research projects

**19.5 Contents-by-Journal Service**

- Distribution of journal contents pages
- Example: *Current Contents*

**19.6 Newspaper Clipping Service**

- Subject-wise newspaper cuttings
- Compiled and circulated periodically

**20. Computer-Based Alerting Services**

- Automated CAS using databases and networks
- Faster, flexible, cost-effective
- Delivered via **email, RSS, intranet, portals**

**20.1 Alerts, RSS Feeds and Email**

| Database / Platform | Coverage |
|---|---|
| Scopus | Multidisciplinary |
| Web of Science | Multidisciplinary |
| EBSCOhost | Multidisciplinary |
| ProQuest | Multidisciplinary |
| PubMed | Health Sciences |
| IEEE Xplore | Engineering & IT |

**20.2 Types of Electronic Alerts**

| Alert Type | Purpose |
|---|---|
| TOC Alerts | Journal contents |
| Search Alerts | Saved search results |
| Citation Alerts | Citation tracking |
| New Publication Alerts | Books, proceedings |

**21. Software Packages for CAS**

| Software | Vendor |
|---|---|
| DATAFLEX | Dataflex |
| ORBIT | Maxwell Online |
| TINLIB | Information Made Easy Ltd. |
| STATUS | Harwell Computer Power |

**Personal Bibliographic Software**

- Reference Manager
- ASK SAM
- EndNote / Notebook

**22. CAS Provided by External Agencies**

**22.1 Online Hosts**

- Profile-based alerts
- Cross-database searching
- Storage and reuse of records

**22.2 Database Producers**

- Subject-specific CAS services
- Alerts delivered via email or web

**22.3 ISI Alerting Services**

| Service | Nature |
|---|---|
| Personal Alert | Highly customized |
| Discovery Agent | Web-based alerts |
| Research Alert | Print-based |
| Springer Link Alerts | TOC-based |

**22.4 E-Mail and Bulletin Board Services**

- Used for general announcements
- Support newsletters and information sharing
- Operate within organizational networks

**23. Referral, Document Delivery and Translation Services**

- These are **responsive library services**, provided **only on user request**
- They support users when information is:
    - Not available locally
    - Available but inaccessible
    - Available in a foreign language

**24. Referral Service**

**24.1 Meaning**

- Referral service **does not supply documents**
- It **directs users to external sources** such as:
    - Experts
    - Institutions
    - Agencies

**Definition (Essence)**

- Directing users with specific needs to **reliable external information sources**

**24.2 Need and Purpose of Referral Service**

- No library can own all information sources
- Libraries remain **responsible for user satisfaction**
- Referral bridges collection and expertise gaps

**Purposes**

- Provide access beyond library holdings
- Support health, legal, employment, academic, and research needs

**24.3 Provision of Referral Service**

| Component | Explanation |
|---|---|
| Resource File | Directory of experts, agencies, institutions |
| Question–Answer | Understanding and analysing user query |
| Clarification & Follow-up | Ensuring user receives required help |

**24.3.1 Resource File**

- Contains:
    - Names
    - Addresses
    - Contact details
- Updated regularly
- Preferably **computerized** for easy maintenance

**24.3.2 Question / Answer Component**

| Type | Description |
|---|---|
| Simple | Librarian gives name/contact of agency |
| Simple Referral | Librarian discusses and refers user |
| Complex Referral | Librarian contacts agency on user's behalf |

**24.3.3 Clarification, Follow-up and Assistance**

- Librarian:
    - Clarifies hidden needs
    - Explains agency services
    - Assists if user faces difficulty
- Follow-up ensures service effectiveness

**Limitations**

- No direct control over external agencies
- Requires continuous updating
- Librarian attitude may limit effectiveness

**25. Document Delivery Service (DDS)**

**25.1 Meaning**

- DDS supplies **original documents or copies**:
    - Print
    - Electronic
- Delivered **on demand**

**Definition (Essence)**

- Supplying requested documents in physical or digital form

**25.2 Importance of DDS**

- Final link of information services
- Adds value to:
    - CAS
    - Indexing & abstracting
    - Literature search services

**25.3 Growth and Development of DDS**

**25.3.1 Increase in Demand**

- Causes:
    - Explosion of literature
    - Growth of research
    - Online bibliographic databases
    - Budget constraints

**25.3.2 Document Supply Centres**

- Established to:
    - Handle large-scale requests
    - Reduce pressure on individual libraries

**Examples**

- National and international document supply centres

### 25.3.3 Impact of Technology

- Use of:
    - Scanners
    - Computers
    - Internet
- Faster delivery
- Remote access
- Expansion beyond libraries

### 25.4 Electronic Document Delivery Systems (EDDS)

| Feature | Description |
|---|---|
| Mode | Electronic |
| Format | PDF / Image |
| Delivery | Email / Web / Software |
| Speed | Near-instant |

**EDDS = DDS using digital technology**

### 25.5 Emergence of E-Journal Consortia

- Libraries form consortia to:
    - Share costs
    - Access large e-journal collections

**Impact**

- Reduced demand for printed journal articles
- Increased self-service document access

### 25.6 Problems of DDS

- Copyright restrictions
- Licensing limitations
- International ILL protocols
- Publisher-imposed restrictions

### 25.7 Role of International Organizations

| Organization | Role |
|---|---|
| IFLA | Copyright, legal advocacy |
| IFLA DDS Section | Improve global document sharing |
| IFLA Voucher Scheme | Payment mechanism for ILL |
| ISO-ILL | Standardization of ILL protocols |

## 26. Translation Services

### 26.1 Meaning

- Translation = **conversion from source language to target language**
- Essential because:
    - Large portion of S&T literature is non-English

### 26.2 Need for Translation Services

- Global research output
- Language barriers
- Post-World War II scientific growth

### 26.3 Translation Process

| Stage | Description |
|---|---|
| Analysis | Meaning, grammar, terminology |
| Comprehension | Subject understanding |
| Transfer | Accurate rendering in target language |

### 26.4 Translation Methods

| Method | Used For |
|---|---|
| Literal Translation | Science, technology, law |
| Literary Translation | Novels, poetry, drama |

### 26.5 Translation Services in Science & Technology

- National translation centres:
    - Register
    - Index
    - Disseminate translations

### 26.6 Index Translationum

- International bibliography of translated books
- Covers:
    - All subjects
    - Multiple languages
- Maintained as a global database

## 27. Translation Services in India

### 27.1 Institutional Translation

- In-house translation in:
    - R&D labs

- Public sector organizations

### 27.2 NISCAIR Foreign Language Service

- Provides:
  - S&T translations
  - Multiple foreign languages → English
  - Limited English → foreign language

### 27.3 Humanities & Social Sciences Translation

| Organization | Contribution |
|---|---|
| NCERT | Textbook translations |
| SCERT | State language translations |
| Sahitya Akademi | Literary translations |
| ICCR | Cultural translations |

## 28. Machine Translation (MT)

### 28.1 Meaning

- Automatic translation using computers
- Minimal human intervention

### 28.2 Features of MT

- Requires:
  - Pre-editing or post-editing
- Best for:
  - Limited vocabulary
  - Standardized texts

### 28.3 Types of MT Demand

| Type | Purpose |
|---|---|
| Dissemination | Publication-quality |
| Assimilation | Rough understanding |
| Interchange | Web, email, chat |
| Information Access | Search, summarization |

### 28.4 Machine Translation Research in India

- Focus areas:
  - English ↔ Hindi
  - Indian language pairs

**Key Developments**

- Domain-specific MT systems

- Government-funded projects

**29. Role of Libraries in Translation Services**

- Maintain:
    - Translator directories
    - Agency contacts
- Facilitate:
    - Full translation
    - Abstracts
    - Summaries
- Support urgent user needs

# Unit.4. Information System and their Services

### 4.1 Introduction

- During information retrieval and user services, **library and information professionals** have faced several challenges over the last few decades.
- Traditional information and documentation services were often:
    - Inadequate
    - Time-consuming
    - Unable to provide information in a **usable form** without delay.
- These gaps highlighted the need for:
    - Better coordination
    - Improved information systems
    - Strong institutional support

**Role of Information Organisations**

- National and international information organisations play a key role in:
    - Coordination of information activities
    - Promotion of information services
    - Development of modern LIS infrastructure

**Types of Information Organisations**

| Category | Description |
|---|---|
| Governmental | Established and funded by governments |
| Voluntary / Professional | Run by professional bodies |
| Advisory | Provide policy guidance |
| Service-oriented | Deliver information services |
| Commercial | Operate on cost-recovery or profit basis |
| Grant-giving / Catalytic | Support LIS development projects |

**Impact of Modern Technology**

- Advancement in:
    - Computer technology
    - Telecommunication technology
- Enabled:
    - Resource sharing
    - Library cooperation
    - Networking
    - Library consortia

**Outcome**

- Information brought closer to users
- Improved efficiency in information handling and services

**4.2 Scope of the Unit**

- This unit covers a descriptive account of:
    - National documentation and information centres
    - International information systems
    - Professional organisations with global standing
    - National systems with international orientation
    - Specialised organisations providing subject-specific information services

**4.3 National Information Organisations**

- National information organisations are increasingly recognised as vital for:
    - Scientific and technological development
    - National planning and policy making
    - Research and academic growth

**Users Benefited**

- Scientists
- Technologists
- Planners
- Policy makers
- Scholars
- Administrators

**4.4 National Level Documentation / Information Centres in India**

- India has established several **national-level information centres** to:
    - Support R&D activities
    - Provide access to global S&T literature
    - Facilitate information dissemination

**4.5 National Institute of Science Communication and Information Resources (NISCAIR)**

**4.5.1 Background**

- Established originally as **Indian National Scientific Documentation Centre (INSDOC)** in **1952**
- Constituent laboratory of **Council of Scientific and Industrial Research (CSIR)**
- Established with support of **UNESCO**

- Served as a **national centre for science and technology information**

### 4.5.2 Objectives of INSDOC (at the time of establishment)

- To receive and retain important scientific periodicals useful to the country
- To answer **specific user queries** using national and international resources
- To inform scientists and engineers through **abstracting bulletins**
- To supply **photocopies of scientific articles**
- To provide **translations** of scientific literature from foreign languages
- To act as a **repository of published and unpublished scientific reports**
- To disseminate **Indian scientific research globally**

### 4.5.3 Reorientation and Modernisation

- Over five decades, services were:
    - Updated
    - Reoriented
    - Technology-enabled
- Use of:
    - Computers
    - Telecommunication networks
- Resulted in:
    - Faster access
    - Efficient service delivery
    - Improved user satisfaction

### 4.5.4 Formation of NISCAIR

- In **September 2002**, INSDOC merged with:
    - National Institute of Science Communication (NISCOM)
- The merged institution was renamed as:
    - **National Institute of Science Communication and Information Resources (NISCAIR)**

### 4.5.5 Main Objective of NISCAIR

- Dissemination of **scientific and technical information** through:
    - Information products
    - Information services
    - Modern digital platforms

### 4.5.6 Citizen Charter Orientation

- NISCAIR follows a **Citizen Charter** approach focusing on:
    - Public entitlement to services
    - Transparency
    - Defined service standards
    - Quality assurance
    - Access to information
    - Simplified complaint mechanisms

### 4.6 Activities of National Institute of Science Communication and Information Resources (NISCAIR)

To achieve its objectives, NISCAIR organises a wide range of **publication, information, training, and consultancy activities**.

#### 4.6.1 Major Activities (Overview)

| Area | Activity |
|---|---|
| Publishing | Scientific journals, magazines, books |
| Information | Reference, database, translation services |
| Digital | Electronic publishing, databases |
| Training | LIS & science communication |
| Resources | National Science Library |
| Support | Consultancy & marketing |

### 4.7 Publication Activities of NISCAIR

#### 4.7.1 Scientific Journals Published by NISCAIR

NISCAIR publishes **17 primary research journals** covering major S&T disciplines.

**Primary Journals**

| No. | Journal Title | Frequency |
|---|---|---|
| 1 | Journal of Scientific and Industrial Research | Monthly |
| 2 | Indian Journal of Chemistry – Section A | Monthly |
| 3 | Indian Journal of Chemistry – Section B | Monthly |
| 4 | Indian Journal of Experimental Biology | Monthly |
| 5 | Indian Journal of Pure & Applied Physics | Monthly |
| 6 | Indian Journal of Biochemistry & Biophysics | Bi-monthly |
| 7 | Indian Journal of Engineering & Materials Sciences | Bi-monthly |
| 8 | Indian Journal of Chemical Technology | Bi-monthly |
| 9 | Indian Journal of Radio & Space Physics | Bi-monthly |
| 10 | Journal of Intellectual Property Rights | Bi-monthly |
| 11 | Indian Journal of Marine Sciences | Quarterly |
| 12 | Indian Journal of Fibre & Textile Research | Quarterly |
| 13 | Natural Product Radiance | Bi-monthly |
| 14 | Indian Journal of Biotechnology | Quarterly |
| 15 | Indian Journal of Traditional Knowledge | Quarterly |
| 16 | Annals of Library and Information Studies | Quarterly |
| 17 | Bhartiya Vaigyanik evam Audyogik Anusandhan Patrika (Hindi) | Half-yearly |

### 4.7.2 Abstracting Journals Published by NISCAIR

| Abstracting Journal | Frequency |
|---|---|
| Medicinal and Aromatic Plants Abstracts | Bi-monthly |
| Indian Science Abstracts | Fortnightly |

### 4.8 CSIR News and CSIR Samachar

- **CSIR News** – English, **Fortnightly**
- **CSIR Samachar** – Hindi, **Monthly**

**Purpose**

- Acts as a communication link among CSIR laboratories
- Provides information on:
    - R&D programmes
    - CSIR activities
    - Universities and industry research

### 4.9 Wealth of India (WOI)

- Encyclopaedia of **Indian natural raw materials**
- Continuous activities include:
    - Publishing supplements
    - Enquiry services on raw materials
- **Hindi version**: *Bharat ki Sampada*

### 4.10 Raw Material Herbarium and Museum

**Services Provided**

- Identification of:
    - Plants
    - Crude drugs of plant origin
- Consultancy services
- **Photo Library Service**
    - Over **3,000 photographs/illustrations**

### 4.11 Popular Science Publications

### 4.11.1 Popular Science Magazines

| Magazine | Language | Frequency |
|---|---|---|
| Science Reporter | English | Monthly |
| Vigyan Pragati | Hindi | Monthly |
| Science Ki Duniya | Urdu | Quarterly |

### 4.11.2 Popular Science Books

- Covers:
    - Fundamental science
    - Emerging scientific areas
    - Science entertainment
- Written for **general users and students**

### 4.12 Information Services of NISCAIR

**Key Services**

- **Medicinal & Aromatic Plants Information Service (MAPIS)**
- **Content, Abstract & Photocopy Service (CAPS)**
- **Literature Search Service**
    - Access to **6000+ international databases**
- **ISSN National Centre for India**
- **S&T Translation Services**
    - Languages: Japanese, German, French, Spanish, Chinese, Russian → English
- **Bibliometric Services**
    - Research trend and impact analysis

### 4.13 Electronic Publishing

- Digitised publication of:
    - Indian Science Abstracts
    - Medicinal & Aromatic Plants Abstracts
    - Wealth of India (Raw Materials Series)

### 4.14 Human Resource Development (HRD)

- LIS training since **1964**
- Major programmes:
    - **Associateship in Information Science** (2-year full-time)
    - Short-term training in:
        - Library automation
        - Computer applications
        - Science communication
        - Herbarium techniques
    - On-site and attachment training programmes

### 4.15 National Science Library (NSL)

#### 4.15.1 Profile

- Established in **1964**
- National repository for S&T literature

#### 4.15.2 Collection Strength

The collection is categorized into the following item-wise segments:

- **Books and Monographs:** Over **2,00,000** printed volumes covering diverse S&T disciplines, including information science, computer software/hardware, and books in Hindi.
- **Journals (Print & Electronic):**
    - **Bound Volumes:** Approximately **1,20,000** bound volumes of journals.
    - **Current Subscriptions:** About **1,250 Indian** and over **300 foreign** periodicals.
    - **Electronic Access:** Subscriptions to more than **4,200 international e-journals** from 16 major publishers and access to over **2,500 open-access journals**.
- **CD-ROM Databases:** A specialized collection including ADONIS, CAB Abstracts, US Patents, SCI, and Indian Standards.
- **Specialized Technical Materials:** This includes research reports, standards, patents, theses, and conference proceedings.
- **Institutional Publications:** Annual reports of premier R&D organizations like **INSA, DAE, ICMR, and CSIR laboratories**.
- **Foreign Language Resources:** Dictionaries and technical literature in languages such as **Japanese, Russian, German, French, and Chinese**.
- **Digital Collection (NSDL):** A curriculum-based digital library providing science content for undergraduate students, including over **570 specialized S&T books**

#### 4.15.3 Services

- Reader services
- Technical query service
- Copying service
- Inter-Library Loan (ILL)

### 4.16 Consultancy Services

NISCAIR provides consultancy in:

- Library modernisation and automation
- Turnkey LIS projects
- Design and development of specialised databases
- Editing, designing, printing and production of publications

### 4.17 National Social Science Documentation Centre (NASSDOC)

The **National Social Science Documentation Centre (NASSDOC)** was established in **1969** at New Delhi by the Indian Council of Social Science Research (ICSSR).
It functions as a **national-level documentation and information centre** for social sciences in India.

### 4.18 Objectives of NASSDOC

NASSDOC was established with the following objectives:

- To provide **library and information support** to social science researchers
- To support:
    - Universities and academic institutions
    - Autonomous research organisations
    - Policy making, planning and research units of government
    - Business and industry
- To **disseminate information** on developments in social science research
- To guide libraries of:
    - ICSSR Regional Centres
    - ICSSR-maintained Research Institutions
- To provide **financial assistance** for:
    - Documentation projects
    - Bibliographic projects
- To conduct **short-term training programmes** for:
    - Social scientists
    - Research scholars
    - Librarians
    - IT professionals
- To offer **study grants** to doctoral students for collecting research material from libraries across India

### 4.19 NASSDOC Collections

NASSDOC has a **rich and specialised collection** in social sciences:

- Unpublished **Ph.D. dissertations**
- **Research project reports**
- Indian and foreign **social science journals**
    - Including complete back volumes
- Printed and **digital databases**

### 4.20 Library and Information Services of NASSDOC

Based on its collections, NASSDOC provides the following services:

- Library and **reference services**
- **Literature search services** using:
    - Printed databases
    - Digital databases
    - Online databases
- **Bibliography compilation** on request
- **Document Delivery Service (DDS)** through:
    - Inter-Library Loan (ILL)
    - Photocopying of documents
- Acquisition and distribution of:
    - Bibliographies
    - Directories
    - Reference sources in social sciences

### 4.21 Databases and Publications of NASSDOC

One of the **core activities** of NASSDOC is the creation of **databases and locating tools**.

**Major Products Include**

- Library databases
- Directories
- Union catalogues
- Bibliographies
- Social science journals

### 4.22 Major Databases of NASSDOC

#### 4.22.1 Database of Research Project Reports

| Aspect | Details |
|---|---|
| Coverage | 3,000+ research project reports |
| Funding Agencies | ICSSR and other organisations |
| Data Fields | Author, title, subject, etc. |
| Format | Print and digital |

#### 4.22.2 Database of Ph.D. Dissertations

| Aspect | Details |
|---|---|
| Coverage | About 5,000 dissertations |
| Data Included | Researcher name, topic, year of award |
| Format | Print and digital |

### 4.23 Directories Published by NASSDOC

#### 4.23.1 Directory of Social Science Libraries and Information Centres in India

- Covers **447 libraries and information centres**
- Includes institutions under:
    - Government agencies
    - Universities
    - Research and training institutes
    - Banks, industry and trade
- Each entry provides:
    - Address and e-mail
    - Staff strength
    - Type and size of collection
    - Budget
    - Subject coverage
    - Computerisation details
    - Services such as:
        - Photocopying
        - Bibliographic services
        - Inter-Library Loan
        - Online databases
        - Literature search
        - Translation services

**Significance**

- Promotes **resource sharing**
- Strengthens **library cooperation**

#### 4.23.2 Directory of Social Science Research and Training Institutions in India

| Feature | Description |
|---|---|
| Institutions Covered | About 450 |
| Information Included | Research areas, achievements, facilities |
| Additional Details | Staff, library services, publications |
| Indexes | Subject Index & Location Index |
| Last Updated | 1996 |

### 4.23.3 Directory of Asian Social Science Research and Training Institutions in India

- Covers **42 institutions** engaged in Asian Studies
- Information provided:
    - Name and address
    - Objectives and activities
    - Training programmes
    - Publications
    - Library collections and services
- Includes:
    - Subject Index
    - Location Index

## 4.24 Union Catalogues Compiled by NASSDOC

### 4.24.1 Union Catalogue of Social Science Periodicals and Serials in India

- Compilation started in **1970**
- Published in **32 volumes**
- Coverage:
    - **31,125 journals**
    - **550 libraries**
    - **17 states + 2 Union Territories**
- Separate volume for **National Library, Kolkata**

### 4.24.3 Union Catalogue of CD-ROM Databases in Social Sciences

| Feature | Details |
|---|---|
| CD-ROM Databases | 132 |
| Libraries Covered | 40 major social science libraries |
| Information Provided | Title, frequency, annotation |
| Additional Details | Producer/vendor, library holdings |

## 4.25 Bibliography on India in 2000 A.D.

- Contains **647 selected records**
- Covers:
    - Books
    - Journal articles
    - Research reports
    - Seminar papers

- Language: **English**
- Time coverage: **Up to first half of 1987**
- Includes:
    - Studies on India
    - Selected works on Asia and the world relevant to India

Latest info 2025:

**Key Collection Statistics**

NASSDOC maintains a specialized collection focused on grey literature and unpublished research often unavailable elsewhere.

- **Electronic Resources:** The portal provides 24/7 access to over **1,59,000 e-books**, **66,000 e-journals**, and **28.9 million** journal articles.
- **Ph.D. Dissertations:** A database of **5,674** doctoral theses acquired from Indian universities.
- **Research Reports:** Over **3,671** project reports funded by ICSSR and other global organizations.
- **Physical Books:** A specialized collection of over **19,430** titles in social science disciplines and research methodology.
- **Periodicals:** Approximately **450** active Indian and foreign journal subscriptions and **12,500** bound back volumes.

**Premier Databases & Access**

Through the ICSSR E-Resources Portal, researchers can access 11+ major global databases, including:

- **JSTOR & Scopus:** Archival and citation databases covering thousands of academic journals.
- **IndiaStat & ProwessIQ:** Comprehensive socio-economic and industrial data for the Indian market.
- **One Nation One Subscription (ONOS):** Direct access to major publishers like **Oxford University Press**, **Sage**, **Taylor & Francis**, and **Wiley**.

**Specialized Services**

- **Literature Search on Demand:** Compilation of subject-specific bibliographies (with or without abstracts) upon request.
- **Study Grants:** Financial assistance for doctoral students to visit various libraries across India to collect research data.
- **Inter-Library Loan (ILL):** Procurement of documents from other national and international libraries, including partners like DELNET.
- **Digital Preservation:** Digitization of over **2,000 theses** and a database of Indian Social Science Periodical Literature (INSSPEL) containing **97,492** references published before 1970.

**4.26 Defence Scientific Information and Documentation Centre (DESIDOC)**

The **Defence Scientific Information and Documentation Centre (DESIDOC)** is a premier **scientific information and documentation centre** serving the defence research community of India.

- Started in **1958** as **Scientific Information Bureau (SIB)**
- Functioned as a division of **Defence Science Laboratory (DSL)**
- **DRDO Library** (established **1948**) became part of SIB in **1959**
- Renamed **DESIDOC** in **1967**
- Became an **independent DRDO laboratory in 1970**
- Shifted to a new building at **Metcalfe House complex in 1988**
- Functions as the **central information resource** for Defence Research and Development Organisation (DRDO)

**4.27 Objectives of DESIDOC**

DESIDOC works with the following objectives:

- To function as a **central source** for:
    - Scientific information
    - Documentation
    - Library services
    - Reprographic services
    - Translation services
- To **coordinate scientific information programmes** of DRDO
- To develop **information systems for Defence Science & Technology**
- To provide **training and user education** in scientific information
- To offer **consultancy and referral services**
- To publish **scientific and technical journals, books and monographs** of DRDO

**4.28 Major Activities of DESIDOC**

**4.28.1 Library Services**

DESIDOC maintains the **Defence Science Library**, the **central library of DRDO**.

Services include:

- Online Public Access Catalogue (OPAC)
- CD-ROM search services
- Document Supply Service (DDS)
- Resource sharing services

**4.28.2 Information Processing and Dissemination**

- Collection of **S&T information** relevant to defence research
- Provision of:

    - **Current Awareness Services (CAS)**
    - **Selective Dissemination of Information (SDI)**
- Services are customised for **DRDO scientists and engineers**

### 4.28.3 Database Development

DESIDOC develops and maintains the following databases:

| Database Type | Coverage |
|---|---|
| OPAC | Books and monographs |
| Bibliographic Databases | Reports, conference proceedings |
| Full-Text Databases | Newspaper clippings, Defence Science Journal |
| Contents Databases | IEE / IEEE contents |

### 4.28.4 DRDO Publications

DESIDOC acts as the **publication wing of DRDO** and publishes:

- Journals
- Monographs
- Newsletters
- Technical reports

### 4.28.5 Training Activities

Training programmes are conducted in:

- Information collection and organisation
- Library automation
- Database development
- Online searching
- Internet and ICT applications
- Information Technology for libraries

### 4.28.6 Technical Services

DESIDOC provides the following technical support services:

- Reprography (photography, scanning, copying)
- Audio-visual presentation support
- Translation services
- Communication services (e-mail, Internet)
- Printing and publishing support

## 4.29 Functional Areas of DESIDOC

### 4.29.1 Internet and E-mail Access

- Provides **Internet and e-mail connectivity** to DRDO laboratories
- Connectivity through:
    - ERNET
    - NICNET
    - VSNL gateway
- Dedicated **Internet Laboratory** established for users

### 4.29.2 Multimedia Laboratory

Facilities provided include:

- Multimedia authoring and design
- Image processing
- CD writing and desktop publishing
- Audio-video designing
- Multimedia CD-ROM production

Used for **top management** and **Scientific Adviser to Defence Minister**

### 4.29.3 Reprographic Facilities

High-quality reprographic support includes:

- Computer-based multicolour slide preparation
- Digital colour copying
- High-resolution printers
- Video recording systems

### 4.29.4 Printing Facility

DESIDOC has a **full-fledged in-house printing unit** covering:

- Designing and layout
- Typesetting and DTP
- Processing and printing

Multicolour commercial printing is outsourced for higher quality output

## 4.30 Publications Brought Out by DESIDOC

| Publication |
|---|
| Defence Science Journal |
| Popular Science & Technology |
| DRDO Newsletter |
| DRDO Samachar |
| R&D Digest |
| Technology Focus |
| DESIDOC Bulletin of Information Technology |

### 4.31 Defence Science Library

The **Defence Science Library** is the **largest defence library in India**.

Key features:

- Collection of **3,00,000+ documents**
- Includes:
    - Books
    - Periodicals
    - Technical reports
    - Patents
    - Standards and specifications
- One of the **earliest computerised libraries** in India
- Supports advanced defence research and development

*Key facts and figures regarding the **Defence Scientific Information and Documentation Centre (DESIDOC)** are detailed below:*

**1. Core Institutional Figures**

- **Established: July 29, 1970**, as a self-accounting unit of DRDO.
- **Original Precursor:** Founded in **1958** as the **Scientific Information Bureau (SIB)**.
- **Location: Metcalfe House, Delhi**, housed in a specialized five-storey building since August 1988.
- **Head of Centre: Ms. Kiran Chauhan**, who currently serves as the **Director** of DESIDOC.

**2. Defence Science Library (DSL) Statistics**

- **Total Document Collection:** Houses approximately **262,000 documents**, including books, technical reports, and standards.
- **Resource Access:** Provides central access to over **50 DRDO laboratories** and establishments across India.
- **Software Systems:** Developed in-house library automation tools like **Suchika**, **DeLAS** (Defence Library Automation Software), and **DELMS**.

**3. Publication & Research Output**

DESIDOC serves as the nodal agency for all DRDO scientific publications through its Online Journal Publishing Portal:

- **Defence Science Journal (DSJ):** A bi-monthly research periodical with a long history of documenting India's defence R&D.
- **DESIDOC Journal of Library & Information Technology (DJLIT):** A bi-monthly journal indexed in major databases like **Scopus**, **DOAJ**, and **WorldCat**.

- **Research Productivity:** A 10-year study (2011–2020) showed **588 articles** published in DJLIT alone, with a collaboration degree averaging **0.65**.
- **Authorship:** Analysis of DJLIT from 2010 to 2024 identified **1,728 authors** contributing to **851 publications**.

**4. Digital and Technical Infrastructure**

- **Website Hosting:** Responsible for the design, hosting, and maintenance of the official **DRDO Website** and the **DESINet** intranet portal.
- **Multimedia Lab:** Equipped for creating **3D simulations** and interactive media to help scientists visualize complex technologies like aerodynamics and electronic warfare.
- **Information Dissemination:** Operates a **"Single Window"** facilitation for all media, printing, and translation services for the Ministry of Defence

**4.32 UNESCO – Communication and Information Sector (CI)**

The **changing role of libraries and information centres**, along with the growth of **modern information technologies**—especially the **Internet**—created a need to redefine the traditional role of libraries.

- To address this new information environment, **UNESCO established the Communication and Information Sector (CI) in 1990**
- CI Sector focuses on **information access, communication, ICTs, media and libraries**
- Works through **regular programmes** and **extra-budgetary projects**
- Active mainly in:
    - Africa
    - Arab States
    - Asia and the Pacific
    - Latin America and the Caribbean
- Collaborates closely with **other UN agencies**

**4.33 Objectives of UNESCO CI Sector**

The main objectives of the CI Sector are:

- Promoting the **free flow of ideas**
- Ensuring **universal access to information**
- Promoting **pluralism and cultural diversity** in media and information networks
- Promoting **access to Information and Communication Technologies (ICTs) for all**

**4.34 UNESCO Activities by Theme**

UNESCO carries out CI activities under the following themes:

- Archives
- Community Media

- Community Multimedia Centres
- Creative Content (Radio, TV, etc.)
- Education and ICT
- e-Governance
- Ethical Issues of Information Society
- Freedom of Expression
- Independent Press
- Information Society
- Information for Community Development
- Information Literacy
- Information Processing Tools
- Information Society Legislation
- Media Education
- Libraries
- Media Development
- Preservation of Documentary Heritage
- ICT for People with Disabilities
- Public Domain Information
- Public Service Broadcasting
- Recycling of IT Equipment
- Communication & Information Training
- Youth and Information Society

**4.35 UNESCO Activities by Region / Country**

UNESCO implements CI programmes region-wise in:

- Africa
- Asia and the Pacific
- Arab States
- Europe and North America
- Latin America and the Caribbean
- Other regions of the world

**4.36 Networks of UNESCO (CI Sector)**

UNESCO supports several **international and regional information networks**:

| Network | Purpose |
|---|---|
| MEDLIB | Internet-based virtual library network |
| APIN | Asia and Pacific Information Network |
| RINAF | Regional Information Society Network for Africa |
| JOURNET | Global Network for Journalism Education |
| UNAL | UNESCO Network of Associated Libraries |
| INFOYOUTH | International Youth Information Network |
| ACCESS-net | Association of Computer Centres |
| HeritageNet | Cultural Institutions Network of Central Asia |
| INFORLAC | Information Society Programme for Latin America & Caribbean |
| ORBICOM | Network linking communication leaders |
| UNITWIN / UNESCO Chairs | International academic collaboration network |

### 4.37 Important UNESCO Networks – Brief Notes

#### 4.37.1 ORBICOM

- International network linking:
    - Academia
    - Media professionals
    - Corporate sector
    - Government communication leaders
- Promotes:
    - Exchange of information
    - Joint research and development projects

#### 4.37.2 UNAL – UNESCO Network of Associated Libraries

- Established in **1990**
- Objective:
    - Promote cooperation among **public libraries worldwide**
- Focus areas:
    - Human rights
    - Peace and cultural dialogue
    - Environmental protection
    - Literacy promotion
- Encourages cooperation between **North and South libraries**

#### 4.37.3 APIN – Asia and Pacific Information Network

- APIN integrates:
    - ASTINFO
    - RINSEAP

    - RINSCA
- Covers all activities of **UNESCO's General Information Programme (PGI)** in Asia-Pacific
- Supports:
    - Information exchange
    - Regional cooperation
    - Capacity building

**4.38 Intergovernmental Programmes of UNESCO (CI)**

UNESCO currently operates **two major intergovernmental programmes** in CI:

- **Information for All Programme (IFAP)**
- **International Programme for the Development of Communication (IPDC)**

**4.39 Information for All Programme (IFAP)**

The **Information for All Programme (IFAP)** provides a global platform for:

- Preservation of information
- Universal access to information
- Participation in the global information society
- Addressing ethical, legal and social issues of ICTs

Key features:

- Promotes **international cooperation and partnerships**
- Develops common strategies, tools and methods
- Aims to reduce the **information gap between information-rich and information-poor**
- Supports UNESCO's core goals:
    - Education for all
    - Free exchange of ideas
    - Improved communication among peoples

**4.40 International Programme for the Development of Communication (IPDC)**

The **IPDC** focuses on **media development**, especially in:

- Developing countries
- Countries in transition

Objectives include:

- Promoting **free and pluralistic media**
- Strengthening:
    - Communication skills

    - Analytical skills
- Enhancing **democratic participation**
- Priority areas:
    - Press freedom
    - Media pluralism
    - Community media development
    - Professional media training
    - Media partnerships

IPDC was created in **1980** to overcome barriers to democratic communication and media development.

**4.41 UNISIST – World Science Information System**

**UNISIST** marked a **new phase in UNESCO's work** in library, documentation, and information services.

- Launched in **1973** by **UNESCO**
- Conceptual framework focused on **scientific and technological information**
- Designed as a **flexible and continuing programme**
- Based on **voluntary international cooperation**
- Aim:
    - Creation of a **loosely connected global network** of information systems and services
- Acted as a **catalyst** for development in scientific information exchange

**4.42 Objectives of UNISIST (UNISIST Study Report, 1971)**

UNISIST stood for:

- Free and unimpeded exchange of **published scientific information**
- Promotion of **compatibility and technical standards**
- Cooperative agreements for information exchange
- Development and training of **scientific manpower**
- Reduction of **administrative and legal barriers**
- Assistance to countries seeking access to **future information services**

**4.43 Intergovernmental Conferences Related to UNISIST**

| Conference | Year | Significance |
|---|---|---|
| UNISIST I | 1971 | Conceptual foundation |
| NATIS | 1974 | National Information Systems |
| UNISIST II | 1979 | Integration and evaluation |

- Implementation carried through **UNESCO Medium Term Plans**

**4.44 PGI – General Information Programme**

The **General Information Programme (PGI)** was created in **1976** by merging:

- UNISIST
- Programmes related to **libraries, documentation, and archives**

Key features:

- Guided by an **Intergovernmental Council (30 Member States)**
- Provided an **integrated approach** to:
    - Information transfer
    - Infrastructure development
    - Training and education
- Reduced inconsistencies in UNESCO's information programmes

**4.45 Sub-Programmes of PGI**

**4.45.1 Tools for Processing and Transfer of Information**

Major outputs included:

- ISO Standards Handbook – Information Transfer
- Machine-Readable Bibliographic Description Manuals
- Common Communication Format (CCF) – 3rd ed. 1993

**4.45.2 Development of Databases**

- International Inventory of Software Packages
- Microcomputer applications in information handling
- CDS/ISIS software:
    - Free for **non-profit organisations in developing countries**

**4.45.3 Regional & International Cooperative Schemes**

- Strengthened **resource sharing and cooperation**
- Supported regional networks such as:
    - ASTINFO – Asia-Pacific S&T Network
    - APINESS – Asia-Pacific Social Science Network

**4.45.4 National Information Policies & Infrastructure**

- Advocated **National Information Policy** for every country
- Key documents:
    - *Information Policy Objectives: UNISIST Proposals* (1974)
    - *Guidelines on National Information Policy*
- Focus on:
    - Infrastructure

- Policy formulation
- Implementation

**4.45.5 Developing an Information Workforce**

- Priority to:
  - Training of information professionals
  - Training of information users
- Activities:
  - Teaching materials
  - Teacher training
  - Refresher courses

**4.46 International Federation of Library Associations and Institutions (IFLA)**

- Founded in **1927** at **Edinburgh, Scotland**
- Non-governmental professional organisation
- Known as the **global voice of the library and information profession**
- Permanent Secretariat established in **1971** at **The Hague, Netherlands**

**4.47 Objectives of IFLA**

- Promote **international cooperation**
- Encourage **research and discussion** in librarianship
- Provide a professional forum for:
  - Library associations
  - Libraries
  - Librarians
- Represent all types of libraries globally
- Advocate universality, comprehensiveness, and representation

**4.48 Structure of IFLA**

| Body | Role |
|---|---|
| Council | Highest governing authority |
| Governing Board | Managerial & professional direction |
| Executive Committee | Day-to-day executive decisions |
| Professional Committee | Coordination of professional units |

**4.51 Core Programmes of IFLA (Overview)**

Earlier major programmes:

- UBCIM – Universal Bibliographic Control & MARC

- UAP – Universal Availability of Publications
- UDT – Universal Dataflow & Telecommunications

Later merged and expanded into new programmes.

**4.52 Action for Development through Libraries Programme (ALP)**

- Launched in **1984** (renamed in **2004**)
- Focus:
    - Developing countries of Africa, Asia, Latin America
- Objectives:
    - Continuing education and training
    - Strengthening library associations
    - Literacy promotion
    - Technology introduction

**4.53 Committee on Copyright & Other Legal Matters (CLM)**

- Represents libraries in **copyright and legal issues**
- Key concerns:
    - Intellectual property
    - Licensing agreements
    - Trade barriers
    - GATS (WTO) implications
- Works with international and regional bodies

**4.54 Committee on Free Access to Information & Freedom of Expression (FAIFE)**

- Promotes **Article 19 of Universal Declaration of Human Rights**
- Ensures:
    - Free access to information
    - Freedom of expression
- Monitors violations globally
- Supports policy development and advocacy

**4.55 IFLA-CDNL Alliance for Bibliographic Standards (ICABS)**

- Formed after closure of **UBCIM (2003)**
- Focus areas:
    - Bibliographic standards
    - Metadata

    - Digital preservation
- Partner institutions include:
    - Library of Congress
    - British Library
    - National Library of Australia
- Supports international harmonisation of standards

**4.56 Preservation and Conservation (PAC)**

- Started in **1984**
- Focus:
    - Preservation of library materials
- Structure:
    - International Focal Point (Paris)
    - Regional Centres worldwide
- Promotes global cooperation in preservation

**4.57 IFLA UNIMARC Core Activity**

- Successor to UBCIM (MARC component)
- Objective:
    - Maintenance and promotion of **UNIMARC**
- UNIMARC formats:
    - Bibliographic
    - Authority
    - Classification
    - Holdings
- Coordinated by **Permanent UNIMARC Committee**
- Collaborates with:
    - ISO TC46
    - ISBN & ISSN agencies
    - CERL

**4.58 IFLANET**

**IFLANET** is the official network of **International Federation of Library Associations and Institutions**.

- Initiated in **1993** under the **Universal Dataflow and Telecommunications (UDT)** Core Programme
- Initially hosted by the **National Library of Canada**

- Purpose:
    - Improve communication within IFLA and its organs
    - Provide a **24×7 virtual presence** of IFLA
- Key functions:
    - General administration support
    - Policy framing on centralized and independent websites
    - Guidelines for document submission
    - Creation and maintenance of IFLA-sponsored mailing lists
- Present status:
    - Administered by **IFLA Headquarters**
    - Hosted by **Institut de l'Information Scientifique et Technique**, France

**4.59 Grants, Scholarships and Fellowships (IFLA)**

- Offered under the **Executive Board of IFLA**
- Target group:
    - Library and information professionals from **developing countries**
- Purpose:
    - Professional development
    - Capacity building
    - International exposure

**4.60 Publications of IFLA**

IFLA provides several publications **free of cost to members**:

- *IFLA Journal* – Quarterly
- *IFLA Annual*
- *IFLA Trends* – Biennial
- *IFLA Medium Term Programme*
- *IFLA Statutes and Rules of Procedure*
- Divisional and Sectional Newsletters

Additional points:

- Regional offices located in:
    - Africa
    - Asia & Oceania
    - Latin America

- IFLA organizes **Annual General Conference** every year in different countries

**4.61 International Federation for Information and Documentation (FID)**

- Founded in **1895**
- Founders:
    - Paul Otlet
    - Henri La Fontaine
- Originally known as:
    - *Institut International de Bibliographie (IIB)*
- Renamed:
    - **International Federation for Documentation** (1930)
    - Word *Information* added in **1986**
- Headquarters shifted to **The Hague** in **1928**
- Became a federation in **1924**
- Gained legal NGO status in **1959**
- Activities ceased in **2002** due to lack of funds
- Still exists in name

**4.62 Objectives of FID**

- Promote international cooperation in:
    - Documentation
    - Information science
    - Information management
- Covered disciplines:
    - Science
    - Technology
    - Social sciences
    - Humanities
- Provided:
    - Global forum for exchange of ideas
    - Coordination among information organisations and professionals

**4.63 Universal Decimal Classification (UDC) and FID**

- One of the **most significant legacies** of FID
- Developed from **Dewey Decimal Classification**

- Originally part of the **Universal Bibliographic Repertory Project**
- UDC activity became independent:
    - **UDC Consortium** formed in the **1990s**
- UDC remains **active and widely used**, even after FID's closure

**4.64 Membership of FID**

Types of membership included:

- National Members
- International Members
- Affiliate Members
- Honorary Fellows

Key point:

- Only **one national member per country**
- For India:
    - **National Institute of Science Communication and Information Resources** (earlier INSDOC)

**4.65 Operational Structure of FID**

- **General Secretariat**
    - Administrative headquarters
    - Permanent Secretariat for UDC
- **Executive Director**
    - Managed daily operations

**Governing Bodies**

- General Assembly – Highest authority (biennial)
- Council – Policy and governance
- Executive Committee – Executive decisions

**4.66 Finances of FID**

Sources of income:

- Membership dues
- Sale of publications
- Royalties
- Grants from:
    - Dutch Government

- **UNESCO**

**4.67 Professional Focus of FID (1990s)**

**4.67.1 Target Group**

- Modern Information Professionals
- Information Users
- Focus on:
  - Emerging roles
  - New information careers

**4.67.2 Major Programme Areas**

FID's professional activities were grouped into **six areas**:

- Business, Finance & Industrial Information
- Information Policy
- Information Science
- Applied Information Technology
- Information Processing & Products
- Information Management

**4.67.3 Activities and Functions**

FID carried out:

- Conferences and seminars
- Publications
- Research projects
- Education and training
- Library networking
- Consultancy services

Supporting structures:

- Council Advisory Groups
- Regional Commissions
- FID Committees
- Special Interest Groups

**4.68 Current Status of FID**

- FID is **no longer operational**
- **UDC Consortium** continues independently

- Hope remains in LIS community for:
    - Revival of FID with external funding support

**4.69 International Council for Science (ICSU)**

**International Council for Science (ICSU)** is a **non-governmental organization** established in **1931** (earlier known as *International Council of Scientific Unions*).

- Core aim:
    - Encourage **international scientific activity for the benefit of mankind**
- Key purposes:
    - Exchange of scientific ideas
    - Communication of scientific information
    - Development of standards in:
        - Methodology
        - Nomenclature
        - Units of measurement
- Role in science–society interface:
    - Mobilises global scientific knowledge and resources
    - Addresses major issues relevant to **science and society**
    - Facilitates interdisciplinary and international scientific cooperation

**4.70 Membership and Structure of ICSU**

- Total membership: **130**
    - **103** National scientific bodies
    - **27** International scientific unions
- Functions as:
    - A global forum for:
        - International science policy discussion
        - Use of science in public policy formulation

**4.71 Major Activities of ICSU**

ICSU undertakes the following activities:

- Coordination of **interdisciplinary research**
- Acting as a **focal point** for:
    - Scientific communication
    - Methodological and data standards

- Advocacy for:
    - Freedom in the conduct of science
    - Equitable access to scientific data and information
- Support for:
    - Science education
    - Capacity building
- Creation of:
    - International and regional scientific networks
- Support to:
    - Scientific conferences, congresses and symposia
- Publication of:
    - Scientific newsletters
    - Handbooks
    - Journals
    - Conference proceedings

**4.72 Publications and Partnerships of ICSU**

- Publishes:
    - *ICSU Yearbook*
    - *ICSU Bulletin* (Quarterly)
- Collaborates with:
    - United Nations agencies
- Provides:
    - Annual grants to members
    - Financial support mainly through **UNESCO**

**4.73 International Council for Scientific and Technical Information (ICSTI)**

**International Council for Scientific and Technical Information (ICSTI)** evolved from **ICSU Abstracting Board (ICSU-AB)**.

- ICSU-AB established in **1952**
- ICSTI replaced ICSU-AB in **1984**
- Membership:
    - Around **50 organizations**
- Nature:

    - Global forum for organisations that:
        - Create
        - Disseminate
        - Use scientific and technical information

**4.74 Objectives of ICSTI**

The chief aim of ICSTI is to:

- Promote recognition of the **value of scientific and technical information**
- Ensure **access to and delivery** of information for:
    - Industry
    - Business
    - Academic institutions
    - Government
    - General public
- Facilitate:
    - Exchange of information
    - Sharing of experiences among international peers
- Act as:
    - A global interaction platform for all stakeholders in information flow

**4.75 Committee on Data for Science and Technology (CODATA)**

**Committee on Data for Science and Technology (CODATA)** is an **interdisciplinary scientific committee** of ICSU.

- Established in **1972**
- Core aim:
    - Promote compilation, evaluation and dissemination of **reliable numerical data**
- Scope:
    - Data in:
        - Physical sciences
        - Biology
        - Geology
        - Astronomy
        - Engineering
        - Environmental sciences

        - Ecology
- Membership:
    - **23 countries**
    - **24 national delegates and committees**

**4.76 Objectives of CODATA**

CODATA aims to:

- Improve:
    - Quality
    - Reliability
    - Accessibility of scientific data
- Strengthen:
    - Data acquisition
    - Data management
    - Data analysis and evaluation
- Emphasis on:
    - Developing countries
- Promote:
    - International cooperation in data activities
- Address:
    - Data access issues
    - Intellectual property concerns

**4.77 Major Activities of CODATA**

CODATA undertakes four major activities:

- Sponsorship of:
    - Biennial **CODATA International Conference on Data**
- Organisation of:
    - Meetings of scientific data experts
- Publication of:
    - Data handling manuals
    - Surveys of data activities
    - Conference proceedings
- Formation of:

    - Task Groups
    - Working Groups
    - Commissions on specific data issues

**4.78 Functions of CODATA**

CODATA performs the following functions:

- Coordination of multinational data projects
- Development of:
    - Data exchange standards
    - Compatibility formats
- Preparation of:
    - Guidelines for data presentation
    - Key internationally usable datasets
- Promotion of:
    - Education and training in data management
- Organisation of:
    - Conferences
    - Workshops
- Collaboration with:
    - Other international organisations on shared data interests

**4.79 Publications and Secretariat of CODATA**

- Major publications:
    - *CODATA Newsletter*
    - Conference proceedings
    - Books and monographs
    - Special reports
    - CODATA Bulletins
- Secretariat location:
    - Paris, France

Important CODATA facts from **2025–2026**:

- **New Leadership (Jan 2026): Professor B. Burçak Başbuğ** and **Professor Virginia Murray** were appointed interim co-chairs of the International Data Policy Committee.
- **Dataverse 2026:** The **Dataverse Annual Meeting** is scheduled for **May 12–15, 2026**, in Barcelona; the proposal deadline is **February 3, 2026**.

- **WorldFAIR+:** Following the 2024 project conclusion, the **WorldFAIR+ initiative** expanded throughout 2025 to create cross-domain data standards for global research.
- **India Focus (Jan 2026):** The **CODATA India National Committee** held a major session on FAIR and Reproducible Structural Biology on January 28.
- **Physical Constants:** The **2022 CODATA Recommended Values** reached full international implementation as the active standard throughout 2025.

**4.80 Institute for Scientific Information (ISI)**

**Institute for Scientific Information (ISI)** was established in **1960**.

- Nature:
  - International **information provider** for scientific, academic and business communities
- Core function:
  - Provides direct access to:
    - Bibliographic data
    - Cited references
    - Abstracts from leading scholarly publications
- Importance for LIS:
  - Pioneer in **citation indexing**
  - Foundation of **research evaluation tools**

**4.81 Thomson ISI**

- ISI was later acquired by **Thomson Scientific**
- Present identity:
  - Known as **Thomson ISI**
- Goal:
  - Increase research impact through:
    - Integrated information solutions
    - Advanced information technologies

**4.82 ISI Web of Knowledge**

- A major development by ISI
- Functions as:
  - A **single research platform**
- Enables researchers to:
  - Access
  - Analyse

    - Manage scholarly information
- LIS relevance:
    - Multidisciplinary coverage
    - Used in:
        - Academic institutions
        - Research organisations
        - Government bodies
        - Corporate R&D centres

**4.83 Web of Science (WoS)**

**Web of Science** is the **core component** of Web of Knowledge.

- Coverage:
    - Over **8,600 evaluated scholarly journals**
- Key feature:
    - **Cited reference searching**
- Unique strength:
    - Tracks:
        - Backward citations
        - Forward citations
        - Cross-disciplinary linkages
- LIS application:
    - Literature review
    - Research impact analysis
    - Faculty evaluation

**4.84 Citation Indexes by ISI**

ISI provides access to three major citation indexes:

- **Arts and Humanities Citation Index (AHCI)**
- **Science Citation Index Expanded (SCIE)**
- **Social Science Citation Index (SSCI)**

These indexes form the backbone of **bibliometric and scientometric studies** in LIS.

**4.85 Impact Factor**

ISI popularised the concept of **Impact Factor**.

- Based on:

    - Citation analysis
    - Statistical data
- Used to determine:
    - Relative importance of journals
    - High-impact journals in a subject
- LIS importance:
    - Journal selection
    - Collection development
    - Research assessment exercises

**4.86 Major Facilities Provided by ISI**

ISI offers the following facilities:

- Cross-content searching
- Access to:
    - Full-text web content
    - Over **100 years** of backfile records
- Cited reference searching
- Searching:
    - Pre-published journal articles
- Refining and mining search results
- Direct linking to:
    - Publisher full-text
    - Library holdings
- Alert services:
    - Personal citation alerts

**4.87 Current Awareness Services by ISI**

- **ISI Current Contents Connect** provides:
    - Table of contents from:
        - 7,600+ journals
        - 2,000 books and conference proceedings
- Includes:
    - Links to over **3,600 evaluated websites**
- LIS use:

- Current Awareness Service (CAS)
- SDI services

**4.88 ISI Linking Services**

Web of Science and Web of Knowledge provide advanced linking:

- Intra-content links
- Inter-content links
- Library holdings links
- SFX context-sensitive links
- Publisher full-text links

These links support **seamless navigation across scholarly literature**.

**4.89 Users of ISI Services**

Major user groups include:

- Librarians
- Academic researchers
- Scientists
- Research administrators
- Policy analysts
- Corporate R&D professionals

## Table 1

## Organisations / Programmes Related to Library, Information & Documentation

| Organisation / Programme | Established (Year) | Parent / Country |
|---|---|---|
| **NISCAIR** | 1952 (as INSDOC); merged in 2002 | CSIR, India |
| **National Science Library (NSL)** | 1964 | NISCAIR, India |
| **NASSDOC** | 1969 | ICSSR, India |
| **DESIDOC** | 1958 (as SIB); 1970 independent | DRDO, India |
| **UNESCO CI Sector** | 1990 | UNESCO |
| **UNAL (UNESCO Network of Associated Libraries)** | 1990 | UNESCO |
| **APIN (Asia-Pacific Information Network)** | — | UNESCO |
| **IFAP (Information for All Programme)** | 2001 (approx.) | UNESCO |
| **IPDC (International Programme for the Development of Communication)** | 1980 | UNESCO |
| **UNISIST** | 1973 | UNESCO |
| **PGI (General Information Programme)** | 1976 | UNESCO |
| **IFLA** | 1927 | International NGO |
| **IFLANET** | 1993 | IFLA |
| **FID (International Federation for Information and Documentation)** | 1895 | International |
| **ICSU (International Council for Science)** | 1931 | International |
| **ICSTI** | 1984 | International |
| **CODATA** | 1972 | ICSU |
| **ISI (Institute for Scientific Information)** | 1960 | USA |
| **Web of Science** | — | ISI |
| **SCI / SSCI / AHCI** | — | ISI |
| **NUCSSI** | — | India |
| **NKRC (National Knowledge Resource Consortium)** | 2009 | CSIR & DST, India |
| **DDS (Document Delivery Service)** | — | Libraries worldwide |
| **EDDS (Electronic Document Delivery Service)** | 1980s onwards | Global |

## Table 2

## Final Consolidated Table of LIS Organisations & Programmes

| Organisation / Programme | Established | Parent / Country | Key Facts & Figures |
|---|---|---|---|
| **CSIR-NIScPR** | **2021** (1952) | CSIR, India | **New Entity:** Formed by merging **NISCAIR** & **NISTADS** (April 2021). Serves as a Science Communication Think Tank. |
| **INFLIBNET** | 1991 | UGC, India | **Inter-University Centre (IUC)**; operates **SOUL 3.0** software and the Vidwan Expert Database. |
| **Shodhganga** | 2009 | INFLIBNET | Reached **6,00,000+ theses** in May 2025; global leader in Open Access Electronic Theses. |
| **e-ShodhSindhu** | 2016 | MoE, India | Merged UGC-INFONET, NLIST, and INDEST-AICTE. Now subsumed under the **One Nation One Subscription (ONOS)** scheme. |
| **DELNET** | 1988 | India | Changed name to **Developing Library Network** (2000). Connects **9,700+** institutions across 28 states and 8 countries. |
| **CALIBNET** | **1986** | NISSAT, India | **Calcutta Library Network**; India's first visualized metropolitan library network. |
| **MALIBNET** | 1993 | India | **Madras Library Network** (Chennai); promoted by **INSDOC** (now NIScPR) and registered as a society. |
| **OCLC** | 1967 | Global (USA) | Originally "Ohio College Library Center"; maintains WorldCat, the largest bibliographic database (500M+ records). |
| **NDLI** | 2018 | MoE, India | **National Digital Library of India**; coordinated by **IIT Kharagpur** with 60M+ digital resources. |
| **CILIP** | 2002 | UK | Result of the merger between the **Library Association (LA)** and **Institute of Information Scientists (IIS)**. |
| **RRRLF** | 1972 | MoC, India | Nodal agency for **Public Libraries**; helps draft the **National Policy on Library and Information Systems**. |
| **ASIS&T** | 1937 | USA | Formed as **American Documentation Institute (ADI)**; focuses on the intersection of info science and tech. |
| **DESIDOC** | 1970 | DRDO, India | Focuses on **Defence Science & Technology**; established the Defence Science Library. |
| **NASSDOC** | 1969 | ICSSR, India | Repository for **Social Science** research; manages the Union Catalogue of Social Science Periodicals. |
| **IFLA** | 1927 | International | Global voice for the profession; created the **Universal Bibliographic Control (UBC)** program. |
| **PGI (UNESCO)** | 1976 | UNESCO | **General Information Programme**; developed **CDS/ISIS** software for developing nations. |
| **ISI / WoS** | 1960 | USA (Clarivate) | Founded by **Eugene Garfield**; introduced Citation Indexing and the **Impact Factor** (via JCR). |

**1. Major Digital Missions & Future Initiatives (2024–2026)**

| Programme / Project | Estd. | Parent / Country | Key Facts & Figures |
|---|---|---|---|
| **Gyan Bharatam** | **2025** | Ministry of Culture, India | **New Flagship:** Aimed at surveying and digitising over 1 crore Indian manuscripts. |
| **One Nation One Subscription (ONOS)** | 2023 | Govt. of India | National initiative to provide nationwide access to high-impact scholarly journals via a single central subscription. |
| **National Virtual Library of India (NVLI)** | 2016 | Ministry of Culture | Part of the **National Mission on Libraries**; provides a federated search interface to India's diverse cultural and knowledge resources. |
| **SheRNI** | 2024 | INFLIBNET | **She Research Network India:** Expert database focused on connecting and showcasing women scientists and faculty across India. |

**2. Essential Global & Indian Professional Bodies**

These organisations set the standards for library ethics, cataloguing (MARC/RDA), and information policy.

| Organisation | Estd. | Parent / Country | Key Facts & Figures |
|---|---|---|---|
| **IASLIC** | 1955 | India (Kolkata) | Indian Association of Special Libraries and Information Centres; supports technical libraries; publishes **Indian Library Science Abstracts**. |
| **IATLIS** | 1969 | India | Indian Association of Teachers of Library and Information Science; focuses on LIS **education and curriculum standards** in Indian universities. |
| **ALISE** | 1915 | USA / Global | Association for Library and Information Science Education; the global leader for **pedagogical excellence** in LIS professions. |
| **SIS** | 1975 | India | Society for Information Science; promotes interaction between **scientists and information professionals**; awards the **Young Information Scientist Award**. |
| **I-LISS** | 2015 | International | International Library and Information Science Society; headquarters in Chennai; fosters global research cooperation across 15+ country chapters. |

**3. Regional & Specialized Networks (Metadata Powerhouses)**

| Network | Estd. | Parent / Country | Key Facts & Figures |
|---|---|---|---|
| **MYLIBNET** | 1994 | Mysore, India | First library network in India to be fully operational on the Internet. |
| **BONET** | 1992 | Mumbai, India | Bombay Library Network; focuses on **software technology** and specialised engineering resources. |
| **MANLIBNET** | 1998 | India | Management Libraries Network; dedicated to sharing resources among **business and management** school libraries. |

| | | | |
|---|---|---|---|
| **Jisc** | 1993 | UK | Supports the UK's higher education and research sector with digital solutions and network infrastructure (formerly Joint Information Systems Committee). |

**Additional Core LIS Organisations & Programmes**

| Organisation / Programme | Estd. | Parent / Country | Key Facts & Figures |
|---|---|---|---|
| **1. N-LIST** | 2010 | INFLIBNET, India | National Library and Information Services Infrastructure for Scholarly Content; specifically for **colleges** to access 6,000+ e-journals. |
| **2. VIDWAN** | 2012 | INFLIBNET, India | The premier database of Indian scientists/faculty; provides unique **Expert IDs** for research profiles. |
| **3. IRINS** | 2018 | INFLIBNET, India | Indian Research Information Network System; a web-based **Research Information Management (RIM)** service for institutions. |
| **4. CeRA** | 2007 | ICAR, India | Consortium for e-Resources in Agriculture; provides 24/7 access to agricultural journals across 150+ institutions. |
| **5. FORSA** | 1981 | India | **Forum for Resource Sharing in Astronomy**; an elite specialized consortium for astrophysics and space sciences. |
| **6. NKRC** | 2009 | CSIR & DST, India | National Knowledge Resource Consortium; provides e-resource access to 39 CSIR and 60+ DST labs. |
| **7. DOAJ** | 2003 | Global (Lund Univ) | Directory of Open Access Journals; the global "gold standard" for indexing high-quality, peer-reviewed OA journals. |
| **8. OpenDOAR** | 2005 | UK (Jisc) | Directory of Open Access Repositories; the quality-assured list of open access repositories worldwide. |
| **9. CODATA** | 1966 | ISC (Global) | Committee on Data for Science and Technology; focuses on improving the quality and accessibility of **scientific data**. |
| **10. AGRIS** | 1974 | FAO (UN) | International System for Agricultural Science; global database for food and agriculture information. |
| **11. INIS** | 1970 | IAEA | **International Nuclear Information System**; decentralized system for peaceful uses of nuclear science. |
| **12. MEDLARS** | 1964 | NLM (USA) | **Medical Literature Analysis and Retrieval System**; the backend system powering PubMed/MEDLINE. |
| **13. RRRLF** | 1972 | MoC, India | Raja Rammohun Roy Library Foundation; the nodal agency for promoting **Public Library** systems in India. |
| **14. IASLIC** | 1955 | India | Indian Association of Special Libraries and Information Centres; supports technical and specialized libraries. |
| **15. IATLIS** | 1969 | India | Indian Association of Teachers of Library and Information Science; focuses on **LIS education** and curriculum development. |
| **16. SIS** | 1975 | India | Society for Information Science; professional body bridging the gap between scientists and info professionals. |
| **17. LIBER** | 1971 | Europe | Association of European Research Libraries; represents the interests of over 400 research libraries. |

| | | | |
|---|---|---|---|
| **18. Crossref** | 2000 | Global | A not-for-profit membership organization that makes research outputs easy to find via **DOIs (Digital Object Identifiers)**. |
| **19. ORCID** | 2012 | Global | Open Researcher and Contributor ID; provides persistent **unique identifiers** for authors to prevent name ambiguity. |
| **20. LOCKSS** | 1999 | Stanford Univ | **"Lots of Copies Keep Stuff Safe"**; a decentralized digital preservation system for long-term data security. |

END